

The New England Journal of Medicine

VOLUME 212

APRIL 4, 1935

NUMBER 14

NEW ENGLAND SURGICAL SOCIETY

TRAUMATIC DIAPHRAGMATIC HERNIA FOLLOWING WAR INJURIES*

BY PHILMON E. TRUESDALE, M.D.,† AND WALTER G. PHIPPEN, M.D.†

IN this paper we do not propose to discuss the etiology, symptomatology or treatment of diaphragmatic hernia in detail. It is simply our desire to report a case of traumatic diaphragmatic hernia which we hope may have some points of interest.

Scotchman—aged thirty nine years

Occupation electrical engineer

Admitted to Salem Hospital on October 23 1933

F H. His father died of "shock" at the age of fifty two. His mother died of old age at eighty years. He has three sisters living and well. One brother died of pneumonia. One sister died of tuberculosis at the age of twenty three years.

M H. His wife is living and well. He has one child fourteen months of age living and well.

P H. This patient had no serious illnesses. He was operated on in 1913 for inguinal hernia. While in the service during the World War he was wounded (August, 1916) in the left chest as a result of a shrapnel burst. He was taken to the field hospital walking until he collapsed and then carried the remaining distance. He was removed from the field hospital to Rouen where he remained one month. The diagnosis made at this time was collapsed lung. He had a sharp pain in his left chest which extended from his wound down to the vicinity of his umbilicus and he began to experience shortness of breath. The day before he left Rouen, he stated that he had a desire to use the bedpan and in the morning he noticed what he described as "green, congealed blood". At this hospital the x-rays showed a piece of shrapnel near the apex of his heart. His condition improved and the shortness of breath became less marked. He was then moved to a convalescent hospital in Stoke-Newington, England where he remained until November. He was then sent home to Scotland on a two weeks leave. At the expiration of this leave he was to report for duty in Ireland. After he had been home for three days he began to be troubled with a choking feeling and also considerable pain on breathing particularly in the lower left chest. He called in a local doctor who ordered him to the Military Hospital in Edinburgh where he was operated upon for "intestinal obstruction". He stated that the operation at this time revealed a stran-

gulated diaphragmatic hernia which was reduced. He was put back to bed three days later the pain returned and he was operated upon and the hernia repaired. His convalescence was uneventful and he was discharged July 2, 1917 at the same time being discharged from the army. He stated that his general health was good at this time except for some "shortness of breath and slight indigestion".

Since that time the patient has been examined by the Board of Pensions every three months until 1924 disability has been recorded from 40 per cent to 80 per cent and his final disability rating was 60 per cent. He has had no indigestion ever since and stated that eating a big meal caused a feeling of swelling in the lower part of his chest. He was in the Salem Hospital in October 1937 for an abscess of the chest wall (at the posterior end of the old scar in the chest). This was incised and drained with a speedy closure and convalescence.

P I. For the last three weeks the patient has been constantly troubled with "indigestion". The pain has been more severe some days than others but has become acute at least every other day. It has been sharp radiating to the left chest and shoulder and occasionally down the left arm to the elbow. Sometimes it has been directly associated with eating coming on one hour following the meal although at times it has appeared without any definite relation to a meal. The pain has also radiated to the left side of the back and to the costal margin and has been so severe that he perspired freely during the attacks. He has been short of breath ever since the injury in 1916 but during the last three weeks this condition has been much more severe. He has had a slight cough ever since childhood and during these attacks it has been extremely painful to cough. He has expectorated about two teaspoonfuls of white phlegm daily. He has had no bloody sputum and no night sweats. He has had some wheezing but has not noticed that it became any worse on changing his position. Sometimes these attacks were accompanied by retching and sometimes not. He often felt very hungry afterwards and satisfying his hunger did not bring back the pain.

His appetite has been fairly good. He has had nausea but no vomiting. Soda bicarbonate has given some relief. The type of food that he has eaten has not seemed to be of any significance but rather the quantity. He has had considerable gas and has noticed when he has been bothered with gas that the attacks of pain were more likely to occur. His bowels

Read at the Annual Meeting of the New England Surgical Society, Burlington, Vermont, September 29, 1934.

†Truesdale, Philmon E. Surgeon, Fall River Mass. Phippen, Walter G.—Visiting at the Salem Hospital. For records and addresses see "This Week's Issue," page 528.

have required mild laxatives. His stools have been normal in color, no tarry, bloody or clay colored stools have been noted. He has had no dysuria, hematuria or frequency.

The day before admittance, at noon, after a hearty lunch, he felt a pain in his left chest which remained constant during the afternoon but became worse after supper. He went out and took a long walk but there was no improvement. When he returned he felt nauseated and tried to vomit but could not. He called a doctor who gave him morphia, because the pain was so severe. This attack was similar to previous attacks but much more intense. He was admitted to the Salem Hospital the next afternoon, October 23, when the pain had almost disappeared. On admission to the Hospital, although the pain had subsided, there was some general discomfort. A possibility of a recurrent diaphragmatic hernia was considered and x-rays were taken.

A flat x-ray showed "The pulmonary field on the right is negative. On the left from the middle of the scapular region downward, there are many adhesions, one foreign body thought to be a bullet, and it can be definitely established that there is a hernia of the diaphragm with the stomach displaced upward into the thoracic region." See figure 1.

P E Physical examination showed a well developed, rather short, stocky man, normal in every way except his chest. There was dullness over the lower left back with breath sounds faintly transmitted but without râles. There were, however, sounds resembling movements of gas within the intestine. The heart was displaced somewhat toward the midline. The right chest was clear and without dullness.

The patient was transferred to the Truesdale Hospital, Fall River, Massachusetts to the care of Dr. Philemon E. Truesdale who operated on November 9, 1933.

A noteworthy feature of this case of traumatic diaphragmatic hernia was the length of time which elapsed between the date of injury in battle (1916) and the time of radical operation (1933), an interval of seventeen years. As in about 50 per cent of these cases, the patient was operated upon originally for intestinal obstruction, the most common complication demanding interference. Following the operation for intestinal obstruction in Edinburgh in 1917, he was ordered to return to duty though suffering from dyspnea, choking sensations, and intestinal stasis. This is a repetition of what has happened in many of the reported cases.

At the time of the operation in 1917 it is probable that the obstructed bowel was reduced without closure of the aperture in the diaphragm, although we have no definite information on this point.

In this condition intestinal obstruction usually recurs after reduction of the bowel. It is remarkable that this man, though manifesting other symptoms which aroused suspicion of diaphragmatic hernia, was free from acute intestinal obstruction over a period of sixteen years (1917-1933). When he came to us, November 1, 1933, his chief complaint was acute indigestion,

which had differed from the ordinary type in that it was accompanied by a sharp pain radiating to the left thorax and shoulder and occasionally down the left arm to the elbow.



FIGURE 1. Flat plate taken before operation showing gas-filled stomach within the left pleural cavity.

X-ray examination revealed the presence of the stomach (almost in its entirety), transverse colon, and small bowel in the left pleural cavity. Figure II shows the transverse colon above the diaphragm.

Aside from the diaphragmatic hernia the patient appeared to be in good condition and a good operative risk. Under gas-oxygen positive-pressure anesthesia administered by Dr. Albert H. Miller, the hernia was exposed through a transthoracic approach. We found the transverse colon, small intestine, entire stomach, pancreas, spleen, and omentum filling the left thoracic cage. The lung was shrunken to the size of a grapefruit (Figure III). This has no significance, however. It may have been totally collapsed before anesthesia. There were adhesions of the hollow viscera to the edges of the aperture in the diaphragm. These were severed and all the abdominal organs restored to their position below the diaphragm. Through the aperture in the diaphragm the piece of shrapnel was palpated deep in the left side of the abdominal cavity but was not removed. A one per cent solution of novocaine was injected into the left phrenic nerve. This limited the excursion of the diaphragm while the aperture was repaired with a running suture of No. 5

silk. The thoracotomy wound was then closed with interrupted sutures of silkworm gut.

Postoperative x ray examination of the chest two weeks after operation showed the left diaphragm elevated and adherent laterally at the site of operation. Lung fields appeared clear except for the thickened pleura at the left base. Examination with barium by mouth showed the stomach and small bowel in normal position be-

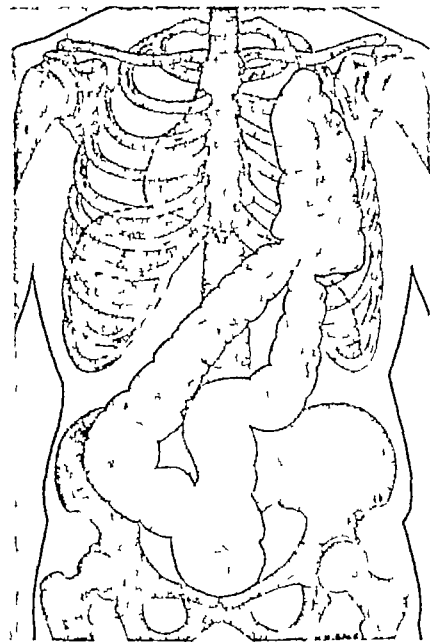


FIGURE II. Drawing from roentgen ray film before operation with barium enema showing transverse colon in left thoracic cavity.

low the diaphragm, examination with barium by enema showed the colon in normal position (Figure IV).

Convalescence was uninterrupted, and so far as we can learn, the patient has remained well since operation.

COMMENT

Until 1920 traumatic hernia of the diaphragm was reported more often than other forms but now that many of the victims of war injuries are dead, the majority of the cases reported are of congenital origin, especially those of the stomach through the *hiatus esophageus*. Hedblom¹ found the incidence in a series of 1408 cases to be 821 congenital and 587 traumatic, exclusive of a large series of esophageal hiatus herniae. During the war, however, many deaths

were due to penetrating wounds of the diaphragm, the sloping high position of this septum presenting a large target for missiles. During four years' service as a British army surgeon, Bryan² never saw a bayonet wound of the diaphragm, probably because bayonet wounds were usually fatal. Damage to the diaphragm was more often the result of bullets or shell fragments. In his series of fifty cases, sixteen were due to bullet wounds, thirty four to shell

Many of these cases give no symptoms or run a chronic course until strangulation of viscera causes alarming symptoms. As with hernia in general, these patients are in constant danger of strangulation. In Koopman's case, six years elapsed rather uneventfully and suddenly fatal strangulation occurred. The patient, a man of thirty-one, was shot twice in the abdomen. He suffered violent attacks of colic, the condition being diagnosed once as gastric ulcer. He was

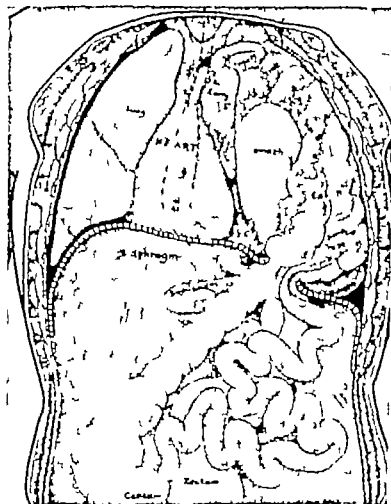


FIGURE III. Drawing showing position of herniated viscera transposed through tear in the left diaphragm.

sent to the hospital July 10, 1931, but died without surgical interference. At autopsy it was noted that in the abdomen the omentum was absent, stomach intact, duodenum and ascending colon greatly dilated, in a large transverse slit in the diaphragm were loops of jejunum, omentum and a great portion of the transverse and descending colon. The omentum was adherent to the edges of the slit and owing to distention and adhesions the hollow viscera could not be removed from the thorax.

In the Museum at Val de Grace is a specimen showing a hernia of the diaphragm which was

not recognized during life One year after injury, death occurred from strangulation of the transverse colon

Polson⁴ in 1930 reported an unusual case A man, forty-three years old, was wounded in the right thigh in 1917 The foreign body traveled upward and inward to the left from this wound and through the diaphragm The patient died

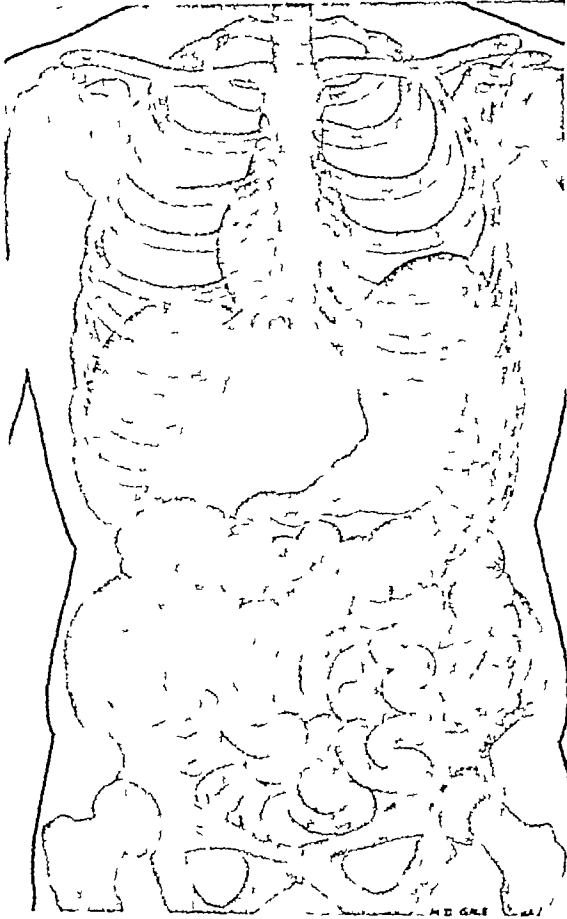


FIGURE IV Composite drawing of x-ray films showing gastro-intestinal tract two weeks after operation.

shortly after admission The omentum and much of the transverse colon, several feet of small intestine, strangulated, were in the left thorax. The left lung was completely collapsed and the heart pushed to the right. One third of the stomach was in the chest and the piece of steel was discovered in the lower lobe of the left lung Thus twelve and one-half years passed and it was only at autopsy that this hernia was discovered, it existed from the time when the diaphragm was injured, but nothing in the patient's history indicated its presence until strangulation occurred

Parenthetically, it may be said that by prompt interference, the lives of these patients could have been saved by a cecostomy

Some of these cases are revealed by the x-ray examination when they are not causing alarming symptoms For example, Aimé's⁵ patient

received extensive injury, but said that except for being very thin and tiring easily on exertion he felt no troublesome symptoms two years after injury and refused operation Yet the x-ray film showed a large opening in the left diaphragm, stomach, and splenic flexure in the chest and a fracture of the tenth left rib The diaphragm was immobilized by adhesions

Lafourcade⁶ operated upon a soldier six months after he had been wounded in the lower left thorax. X-ray examination revealed a herniated stomach After reduction and repair by the thoracotomy route, symptoms of hemoptysis and intercostal pain disappeared

Sometimes the results of the roentgen-ray examination may be misleading, as in a case reported by Greig⁷, of a soldier wounded October, 1914 In 1916 the x-ray film was interpreted as indicating hydropneumothorax Thoracotomy revealed hernia of the diaphragm In

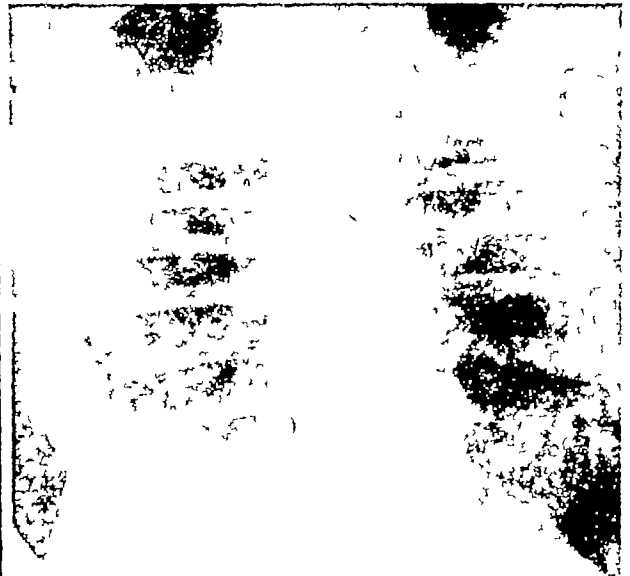


FIGURE V Opaque meal six months after operation

a case reported by Aimé and Solomon⁸ the opaque meal in the vertical position apparently showed most of the stomach in the chest There was no hernia of the diaphragm, however, but an abnormally high diaphragmatic dome, that is, eventration

Often these cases of diaphragmatic hernia were overlooked during the war, when a gunshot wound in the region of the diaphragm should have aroused suspicion of the condition

In a case reported by Bellwood⁹, an able seaman was wounded by shrapnel at Gallipoli and spent a month in a war hospital. The diaphragmatic hernia was not discovered and the pa-

tient returned to duty as a mine-sweeper. He suffered for two years with left hypochondriac pain, which increased in severity from straining on cables and doing other heavy work on the boat. Finally he was operated upon at the naval hospital. The transverse colon, omentum and parts of the small intestine had herniated through a large opening in the left diaphragm. The spleen was matted to the diaphragm by

inal and the thoracic. Sometimes a combination of these two routes is employed. Most of the operations reported by American surgeons show a decided preference for the abdominal approach, whereas the French and German surgeons favor thoracotomy. Invasion of one side of the chest cavity in liberal fashion has become a common practice since the war. There is now less hesitation to approach the diaphragm by this method.

In a monograph on surgery of the chest Sir Berkeley Moynihan¹¹ makes the following comment:

"The subject of thoracic surgery is one which before the war had been made difficult by the cumbersome methods employed. The fear of pneumothorax was present in the minds of most surgeons and was a powerful deterrent."

The safety of open operations on the chest had been emphasized years before the World War. Binnie¹² advocated the transthoracic operation in 1906. Carson and Huelsmann¹³

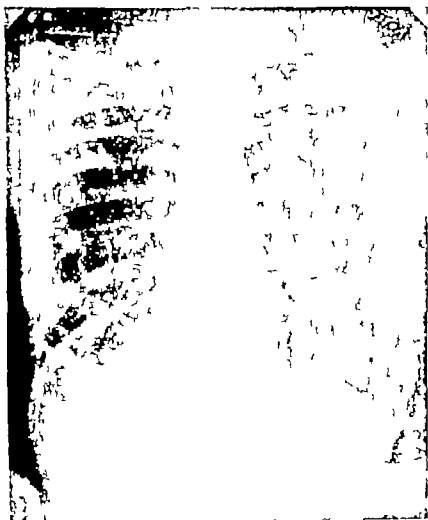


FIGURE VI. Eleven months after operation. Film taken with patient standing without an opaque meal.

numerous old adhesions, the aperture being over the apex of the spleen. Reduction of the hernia was thought impossible. The patient died two days later.

On another occasion a case was discovered after a complaining soldier had passed through numerous physical examinations. This patient was wounded in 1918, but Andrew of England¹⁰ reports that the rent in the diaphragm was overlooked. Symptoms gradually grew worse as more of the stomach passed into the chest. Finally he sought relief at a hospital in 1921. He was too ill for an x-ray examination, exhausted, anemic, suffering from obstruction, having passed "from pillar to post" for three years, and returning to "duty" after each examination. This man was operated upon by the laparotomy route and recovered.

METHODS OF SURGICAL APPROACH

In operating for hernia of the diaphragm, there are two avenues of approach, the abdom-

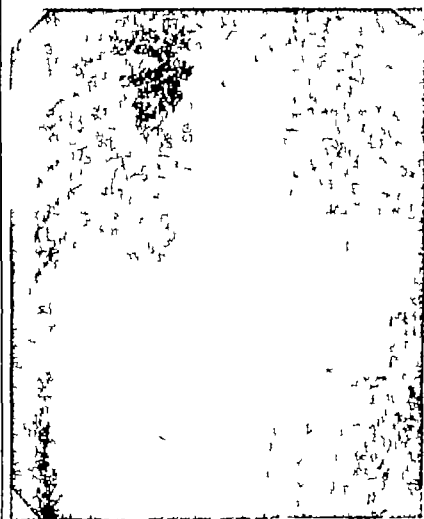


FIGURE VII. Taken at same time as figure VI, with opaque meal and patient in Trendelenburg position.

adopted this method of approach in 1912. Mc Guire¹⁴ in 1912 operated successfully in three instances by the thoracic route and this method was adopted by Greig¹⁵ and others. Major Granger¹⁶ of the British Army found difficulty in suturing the aperture in the diaphragm by the abdominal route and after working for two hours was unable to complete the operation successfully on account of the collapsed condition of the patient.

One argument for using the abdominal approach is the occasional necessity of operating upon a hollow viscus. Polson believes the abdominal route the method of choice when there is acute intestinal obstruction and strangulation, for then the problem is primarily abdominal. It should be, but not for reduction and repair at the same time, whenever a cecostomy would suffice to relieve obstruction.

Among the advantages which may be claimed for thoracotomy are the following:

- 1 It affords a more direct approach.
- 2 Pneumothorax and collapse of the lung are not to be feared. They exist already, as inevitable consequences of a hole in the diaphragm and the transposition of hollow viscera to a position above the diaphragm.
- 3 The open thorax allows the separation of adhesions under direct vision.
- 4 Once the herniated viscera are replaced within the abdomen, they are out of the way, warm, and well protected.
- 5 With less exposure of the bowel, the degree of shock is minimized.
- 6 Suturing from above is more simple than from below.

REFERENCES

- 1 Hedblom C A. Diaphragmatic hernia. *Ann. Int. Med.* 8: 166 (Aug.) 1934.
- 2 Bryan C W G. Injuries of the diaphragm with special reference to abdominothoracic wound. *Brit. J. Surg.* 9: 117 1921-22.
- 3 Koopman H. Acquired impacted pseudohernia of the diaphragm. *München med. Wchnschr.* 72: 1159 (July) 1925. From Graham E A. *Practical Medical Series General Surgery*.
- 4 Polson C J. Case of traumatic diaphragmatic hernia. *Brit. J. Surg.* 18: 170 (July) 1930.
- 5 Almé P. Diaphragmatic hernia. *J. de radiol. et d'électrol.* 4: 365 (Aug.) 1920.
- 6 Lafourcade J. De la hernie diaphragmatique traumatique. *Bull. et mém. Soc. nat. de chir.* 54: 659 (April 7) 1928.
- 7 Greig D M. Diaphragmatic hernia following gunshot wound. *Edinburgh M. J.* 22: 367 (June) 1919.
- 8 Almé P and Solomon J. The radiological diagnosis of transdiaphragmatic hernia of the stomach resulting from war wounds. *Am. J. Roentgenol.* 6: 376 (Aug.) 1919.
- 9 Bellwood K B. A case of diaphragmatic hernia following a gunshot wound of the left hypochondriac region. *J. Roy. Nav. M. Serv. London.* 4: 88 1918.
- 10 Andrew J G. Diaphragmatic hernia of the entire stomach. *Brit. Med. J.* 1: 184 (Feb. 3) 1923.
- 11 Moynihan B. Surgery of the chest in relation to retained projectiles. *Brit. J. Surg.* 7: 444 1920.
- 12 Binnie J F. *Manual of Operative Surgery*. Second Edition. Philadelphia P. Blakiston, 1906.
- 13 Carson N B and Huelsmann L. Diaphragmatic hernia diagnosed before operation. *Interstate M. J.* 19: 316 (April) 1912.
- 14 McGuire S. Discussion on diaphragmatic hernia. *Trans. South Surg. & Gynec. Soc.* 27: 241 1914.
- 15 Greig. Reference?
- 16 Granger C D O. Diaphragmatic hernia. *Brit. J. Surg.* 4: 604 1916-17.
- 17 Auvray. Hernie diaphragmatique de l'estomac du colon transverse et de l'apiploon consécutive à une plaie thoraco-abdominale ancienne. *Intervention guérison. Bull. et mém. Soc. de chir. de Par.* 46: 693 1919.

DISCUSSION

DR. BENJAMIN H. ALTON, Worcester, Mass. May. I ask Dr. Phippen how long after the operation the film of the chest was taken?

DR. PHIPPEN. January 25, 1934. I believe the operation was November 9, 1933. One set of films has been taken since.

DR. ALTON. The film discloses an excellent result. You and Dr. Truesdale are to be congratulated for bringing this case to a successful issue.

This case which has been shown to-day brings to memory many similar cases that I operated upon while in the Army.

In the year of 1918 it was my good fortune to be operating in the advanced Casualty Clearing Stations in the Ypres sector where my work was confined to chest and abdominal surgery. Many cases came under my care where a fragment from a high explosive shell had penetrated the chest, tearing through a portion of the lung, lacerating the diaphragm and lodging in the wall of the stomach or in the liver. Occasionally the pericardium would be torn and in some instances the heart muscle would show signs of trauma. When these men were rendered physically fit with rest, the application of heat, the administration of fluids and blood transfusion, an operation was performed.

The operation consisted of a débridement of the entrance wound of the chest. If it was necessary, the opening in the chest-wall was enlarged removing sufficient amount of ribs to allow free movement of the hands in the pleural cavity. The lung would then be explored and the damaged lobe would be delivered through the opening in the chest wall. Occasionally partial lobectomies were necessary. However most of the wounds of the lungs were confined to furrows of the surface or to tracts made through the lung tissue. The furrows and tracts were completely removed and the bare surfaces of lung tissue were then approximated with a running suture of chromic catgut. The pleural cavity would then be wiped with wet gauze. The laceration of the diaphragm would be completely excised, enlarged if necessary and the missile looked for in the abdominal cavity. If the missile was found in the stomach wall, it was removed, the damaged area of the stomach excised and the opening closed. The diaphragm would then be sutured with a running ligature of chromic catgut which was followed by a plastic repair of the chest wall. Before the last stitch was tied in the repair of the chest wall the lung was inflated, the suture tied thus bringing about an airtight wound.

If the missile entered the liver, it was removed, a gauze drain was lightly packed in the tract and brought out through the original chest wound.

Strange as it may seem the mortality in these cases was low, and, taking in consideration the dirty missile with parts of clothing attached to them, the incidence of empyema following these operations was low. Occasionally secondary operations for empyema were necessary, but the infections were more often controlled by frequent aspirations and injections of gentian violet solution in the pleural cavity.

THE PSYCHOGENIC ORIGIN OF ORGANIC DISEASES*

BY ELI MOSCHCOWITZ, M.D.†

THAT mental processes may be the cause of organic disease has been suggested repeatedly. But no consistent and systematic study has been made of their genesis either in regard to the sequestration of the particular mental processes and emotional reactions that are responsible, or in the differentiation of personality types. I am not referring to the profound relation that emotion may have upon the manifestations of established organic disease, nor upon the modifications that a disease may undergo when it has been engrafted upon different personalities, but to definite causal relations between reiterated emotional reactions and well established anatomical lesions in one or various organs. The proof that such a relationship exists cannot be tested by instruments of precision. The mental reactions of personality are not easily subject to such assays. This problem can best be studied by frank empiricism and observation. One must be in the position to observe the disease throughout its entire biological course, from the stage of emotional response through the initial and middle stages when the functional changes dominate the clinical expression of the disease, down to the terminal phase when the anatomic lesions of the organs become manifest. This is not a job for the specialist, the consultant, or those who work exclusively in hospitals. These only see a small cross section, usually the terminal, of the life cycle of a disease. The study of this problem is essentially the prerogative of the general practitioner. After all it does not require an extensive or profound mental equipment or specialized training to make such a study. A knowledge of the finer shades of human conduct and the ability to grasp the significance of human motives combined with patient observation and broad sympathy are all that are essential.

That emotion may cause profound functional changes is acknowledged. Often this change is measurable, one need only mention the rise in blood pressure, the elevations of basal metabolism, and the increases in blood sugar and the gastric secretory changes during episodes of emotional conflict. At other times, the functional change is expressed in the form of either spasms or increased peristalsis of certain hollow organs,—the stomach colon urinary bladder and the bronchi. Such functional disorders are as a rule evanescent and cease when the insult has spent its force. What is insufficiently recognized, however, is that if the emotional in-

sults continue over prolonged periods the functional reactions become more or less fixed. In other words the blood pressure, the basal metabolism and the blood sugar remain elevated and spasms of hollow organs become continuous. And here arises a problem of vast import. Can a prolonged abnormal function result in profound anatomic change in the affected organ? I believe it can. It has thus far been exceedingly difficult for clinicians and especially pathologists to recognize that such a sequence is possible because we are still largely under the domination of the Continental School which taught, and still teaches, that morbid anatomy comes first and abnormal function follows. Indeed in the vast majority of disease processes this latter mechanism obtains, especially when there is an exogenous cause. In the diseases of emotional origin, however, the process is reversed. For such diseases I suggest the term "Psychnosia."

I shall discuss the following diseases with an anatomical organic change, which to my mind are of psychological origin.

- 1 Essential hypertension
- 2 "Graves" syndrome
- 3 Gastric and duodenal ulcer
- 4 Cardiospasm.
- 5 Spastic or irritable colon and mucous colitis

1 Essential hypertension. The current view regards essential hypertension as the primary phenomenon and that the changes in the cardiovascular renal system are consequent to the hypertension. The main reasons for this belief are first, that cases of essential hypertension observed from the very beginning to the terminal phases reveal such a sequence and secondly, that in hypertension of the pulmonary circulation in which the hypertension is ascribable to an organic increased intravascular resistance (e. g. mitral stenosis) changes in the pulmonary parenchyma and in the pulmonary vessels analogous in every detail to those found in essential hypertension in the organs supplied by the greater circulation notably the heart and kidneys, are easily demonstrable. The two circulations are entirely independent so far as the genesis of such vascular changes are concerned. This complete independence is important to recognize because it furnishes proof that the morbid changes in the vascular system included under the generic name of angiosclerosis are the result of intravascular pressure and its increased gradient hypertension and not to any other factor. The changes in the organ affected by the sclerotic vessels are pathogenetically easily ascribable to the diminished blood supply and attendant compensatory phenomena.

*Read before a joint meeting of the Neurology Psychiatry and Internal Medicine Sections of The New York Academy of Medicine, February 12, 1931.

†Moschcowitz, Eli—Associate Physician, Mt. Sinai Hospital. For record and address of author see "This Week's Issue" page 633.

It must be insisted upon that hypertension is not a new insult that has entered the organism, such as a bacterium or a trauma, for instance, but is simply an exaggeration of a normal phenomenon, namely, intravascular tension. This obvious fact has escaped the attention of many observers who could not reconcile the arteriosclerosis so often witnessed in the senescent years with the normal blood pressure during life. All that hypertension does is to produce these changes sooner and more intensively

a rule these people are "successful", and they may be said to die of "success". Their most conspicuous mental incapacity is their inability to play. They are no longer children. To my mind it is the psychical as much as the physical that brings on premature old age. A well-balanced life requires play as well as work, an alkali, if you may so put it, to neutralize the corroding acid of the "fret and fever" in our lives.

The physical attributes of many of these pa-

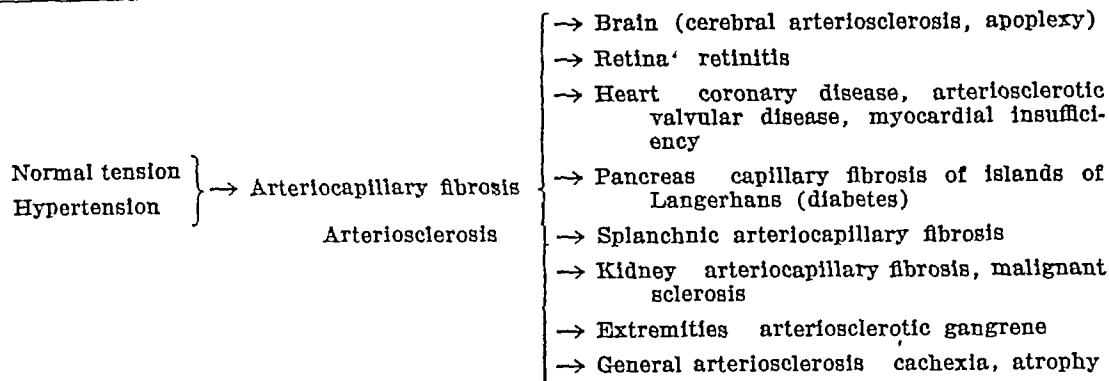


CHART 1* Eventualities possible in hypertension

The issue now centres around the problem of the cause of essential hypertension of the great-er circulation. Observation of many cases over long periods of years has convinced me that es-sential hypertension occurs mostly in individ-uals of a certain psychic make-up which may be termed the antithesis of the child's mental out-look. In a previous paper², I described these individuals as follows: "The greatest propor-tion of patients afflicted with hypertension con-form to a certain type, which may be described as both physical and psychic. The patients are overweight and sometimes quite obese. The neck is short, the muscles are soft, their bodily move-ments are sluggish, their carriage and walk un-graceful and they lack the spring and elan of the former athlete. Psychically, these people are tense, they pursue their vocation with tre-mendous seriousness and worry over triviali-ties. In consequence they are irritable. Phlegm and hypertension are, in my experience, antag-onistic. Furthermore, these individuals have narrow intellectual horizons. Their interest in anything outside of their business is desultory. Their sleep is not restful and they "do not believe" in vacations. Who cannot recognize in this picture the individual that has been facetiously termed the T B M, or "tired busi-ness man", whose tastes have activated a large portion of the so called modern drama? He eats well, drinks alcohol to obtain the stimula-tion that his mental faculties do not afford, and his most violent exercise is his walk to and from the conveyance that takes him to business. As

tients are well recognized under the phrase "the hypertensive constitution" and were regarded by many as the primary anatomical framework upon which the hypertension is engrafted. Such a constitution appears often familial and is therefore regarded as genotypic in origin. To my mind the proof that this "constitution" when it does occur is genotypic is far from ob-vious, it can as readily be accounted for as the result of influences determined by the psychic make-up of the individual, because a certain build is familial, one must not jump to the con-clusion that it is congenital and not transmissi-ble. A man may become fat because he is lazy as well as become lazy because he is fat.

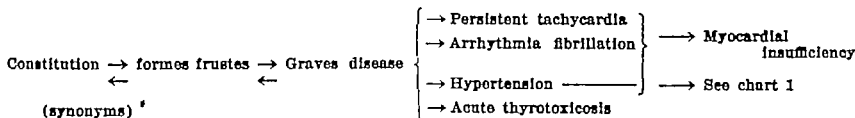
Although both the psychic and physical make-up of these types of individuals bears all the earmarks of being phenotypic rather than genotypic in origin, the problem remains of tracing the environmental influence that has created this vast and increasing race of hyper-tensives. I believe these influences are by-products of the so-called "progress" of modern civilization which has engendered a steadily in-creasing swiftness of pace and a greater com-pactness of mental and physical existence. We live, therefore, in terms of experience, twice as long as our predecessors, so that in comparison with previous generations a person to-day who has reached the age of forty-five has in terms of experience really lived to ninety. This is one of the reasons, I believe, why we are to-day confronted with the appalling increases in the frequency of cardiovascular-renal diseases. We have controlled many of the infections, but we are thus far powerless against this Frankenstein

of modern civilization. In these remarks I have only attempted to develop in specific terms what has always been recognized as a cause of arterio-sclerosis, namely, wear and tear

2. Graves' syndrome. In a previous study¹ I tried to show that Graves' is, strictly speaking, not a disease but a group of symptom-complexes with a fairly definite course, evolving from that group of signs and symptoms termed autonomic imbalance or Basedowid, etc., then passing into the stage of formes frustes and finally reaching its fullest development in the classical picture of Graves' disease characterized by tachycardia, tremor, heightened basal metabolic rate and usually some organic changes such as an enlarged thyroid gland and exophthalmos. As a result of treatment or even spontaneously, there is also seen a reversion from the fully developed to the larval form.

has undergone an hypertrophy. Even the organic evidences of the disease are in a sense exaggerations, the thyroid gland swells or if it has been previously swollen it grows larger. The wide staring eyes become more prominent, and the basal metabolic rate which in the larval stage of such individuals usually veers to the plus side becomes elevated. Here again, therefore, as in essential hypertension, the evidence is that Graves' syndrome does not represent a foreign invasion of the organism but an exaggeration of a normal tendency. The personality of one affected with Graves' disease is much more subtly influenced by the ordinary tribulations of daily life than that of the phlegmatic individual. Even a small emotional strain may produce profound symptoms.

In a recent study by the psychoanalytic method of fifty patients with Graves' disease, Lorand and the writer⁴ found that the sensitiv-



Basedoid

Autonomic imbalance

Pre-Basedow

CHART 5 Exophthalmic goiter

I also tried to show that individuals thus affected belong to a type that is extremely widespread, namely highly sensitive, irritable or "touchy" individuals, who respond to life with extreme delicacy. As a consequence their emotional life has a wide curve, varying from ecstasy to profound depression. These people are often manic and thrive on stimulation, and be long essentially to the artist type. Analysis of their history usually reveals that this personality was already formed long before the symptoms of the disease became manifest sometimes dating back to childhood. The sensitive emotional personality explains why Graves' syndrome is more common in women and why young children whose emotions are not fully developed are comparatively free from the disease. Study of the history reveals that in most instances the patient dates the onset of the disease from a sudden emotional crisis or conflict. In others the transition is insidious. If one has the occasion to know well the patient's personality before the onset of the symptoms and has witnessed the transition, one is impressed with the fact that he has been witnessing nothing more or less than an exaggeration of a normal trend, in other words, the emotional instability is greater, the manic tendencies are more marked, the pulse is more rapid the tremor is more pronounced. The personality, so to speak,

ity of temperament is in most instances the result of excessive protection by the parents, especially by the mother, in early childhood. These patients were so shielded from possible harmful influences that when they reached adult life they were unable to cope with its ordinary tribulations. They claim that their life is an unusually hard one. In other words they remain infantile in their reaction to their environment. They have the doubting folly, become morbid, introverted and exceedingly interested in the interpretations of their own psyche. They show a tendency to love the mystical. They continually rationalize their motives.

We also find many disturbances of the sexual life in most of these patients. Frigidity in the women is almost universal. There is fear of pregnancy and fear of childbirth combined with intense resentment and repressed aggression against men. The unmarried girls reveal psychosexual infantilism. In men, similar situations exist degrees of sexual impotence or at least difficulties in sexual adjustment are always present.

This aggravation of a normal trend is consistent with the accepted interpretation of Graves' syndrome as a hyperthyroidism. All available evidence shows that the thyroid gland is not the primary organ affected, but that it is a link in the chain of circumstances between the

inant problems in the experimental production of ulcer, namely, what factor or factors lead to the establishment of this peculiar chronicity of the human peptic ulcer? If the erosion is the earliest phase of peptic ulcer, why is it almost impossible to prevent such ulcers from healing promptly? Various means have been employed with more or less success to make such erosions chronic, some have succeeded but by methods that do not obtain in human beings, for instance, by injecting chemical irritants in the neighborhood of the ulcer, by repeated x-ray applications, etc. It seems that we have accepted altogether too lightly the assumption that the gastric erosion is the precursor of the peptic ulcer. There is as yet no proof that such is the case. Hauser¹³ who has devoted a lifetime to the study of peptic ulcer and whose monograph on the subject is classical, denies this assumption entirely.

An attempt to bring harmony into this vexed field was made by von Bergmann¹⁴ whose hypothesis has had a wide acclaim in Continental Europe. Briefly, he assumes a disharmony in the vegetative nervous system which leads to local spasm of the gastric wall, which, with or without vascular contraction, leads to an ischemic necrosis resulting in an erosion and, eventually, ulcer. Chronicity is determined by continuous spasm, the result of a vicious circle. Von Bergmann claims to have found stigmata of disharmony of the vegetative nervous system, according to the criteria propounded by Epinger and Hess. Thus far, no conclusive evidence has been submitted to substantiate this hypothesis. Any theory concerning the production of peptic ulcer that involves vascular closure will be difficult to maintain, first, because it is almost impossible to cause an infarct or necrosis in the stomach by ligation of gastric vessel. This is manifest not only experimentally, but also in human beings, when it becomes necessary in the course of gastric operations to ligate large vessels even at considerable distances from the resected area of the stomach. Nor is there any evidence that the sclerotic vessels so commonly found at the base of a peptic ulcer represent primary changes, they are probably secondary lesions. Peptic ulcer is surely not a disease of the decreescent years when vascular occlusions in other portions of the body are common enough. Also a vascular origin does not explain the remarkable predilection of peptic ulcer for the magen-strasse and upper duodenum.

To date, the most convincing data on the experimental production of ulcer are those of Mann, Exalto, Ivy and Dragstedt, wherein by gastrojejunostomy with sidetracking of the alkaline duodenal contents by duodenileostomy, peptic ulcer has been produced analogous at least in its chronicity and anatomic characteristics to human ulcer. Obviously, these experi-

ments prove the importance of the acid (or peptic) factor in ulcer. This has recently been confirmed by Dragstedt who excluded the mechanical factor by producing ulcer with anastomosis or Pawlow pouches to loops of ileum. When we add to these experiments the findings of Winkelstein who studied carefully the separate phases, nervous and chemical, of gastric secretion and found that the nervous phase is apparently responsible for the hyperchlorhydria and hypersecretion of ulcer patients, it seems permissible to argue that both the cause and mechanism of ulcer are mediated through nervous pathways.

The purpose of this rather sketchy survey of the problem of the experimental production of peptic ulcer by the neurogenic approach is not so much to indicate the difficulties, but to point out that such experiments have thus far failed because observers have lost sight of the human equation. Peptic ulcer, like Graves' syndrome is essentially a disease of mankind, the reason why the lower animals are comparatively free from peptic ulcer is, I believe, not so much due to the immunity of their tissues, as to the lack of the higher emotional and affective qualities. Civilization has not yet ground them within its maws and produced the conflicts so manifest in modern life. It must be admitted, therefore, that thus far, as von Bergmann admits, experimental methods have done little to give a support to the neurogenic mechanism of peptic ulcer, clinical investigations have, it is true, not been fruitful, but they have thrown a little light upon the origin, if not upon the mechanism, of peptic ulcer. A mechanism there must be, but what it is as yet nobody knows. Here it is necessary to make a distinction between the cause and mechanism of a disease. Words unfortunately that only too often are used interchangeably. A mechanism represents these altered functional processes that bring about morbid tissue changes, the cause however lies far previous to these processes. For instance, hyperthyroidism is one of the mechanisms whereby Graves' syndrome comes into being, but very few observers to-day believe that it is the cause. Clinically it is, as a rule, much more important to know the cause of a disease than its mechanism, so far as the latter is concerned, the investigator for the present must be a vitalist.

There is a remarkable clinical parallelism between peptic ulcer and Graves' syndrome. In both there is a rather characteristic psychological background. In Graves' syndrome the psyche is a highly sensitive and emotional one, in peptic ulcer it is rigid, aggressive and intolerant. In both a latent malady is brought to light by emotion, either catastrophic or by slow reiterated insults. In both it is sometimes exceedingly difficult to know when the disease actually begins, but whereas, in Graves' syndrome, if

one is fortunate, the observer can follow the intensification and increasing tempo of the signs and symptoms from the larval constitutional stage to the formes frustes and finally to the fully blown form, in peptic ulcer on the other hand, owing to the modern diagnostic criteria, one can never be sure whether the previously existing chronic indigestion represented an actual ulcer or not. Strictly speaking, therefore, we do not as yet know the preceding or intervening stage in peptic ulcer.*

In both, recurrences are common and frequently these recurrences are preceded by periods of emotional upset. In both, excess of normal function dominates the clinical expression of the disease, in both, psychic rest is an important adjuvant in therapy and, finally, in both, modern surgical intervention has parallel indications and results. In Graves' syndrome, the operation aims at removing the hyperthyroidism, in peptic ulcer, the elimination of the hyperchlorhydria and the hypersecretion. After neither operation is a permanent cure an assured accomplishment. The reason is obvious, no matter how thorough the operation the potential background, the personality, always remains. That is why after such operations, the treatment of the disease has only just begun.

4 Cardiospasm—Inasmuch as my experience with this disease is limited I take the privilege of quoting the experience of Dr. Asher Winkelstein¹⁴ who reports eight instances of true cardiospasm with x ray evidences of esophageal dilatation in which the disease followed a psychic trauma, in two instances the malady was cured by psychotherapy. Obviously, Winkelstein does not deny that cardiospasm may result from organic disease of the vagus nerve or by reflex stimuli from other foci. He believes that this group furnishes an excellent example of a functional disturbance leading to an organic disease. He ascribes the mechanism of the cardiospasm as due to a disturbance in the vegetative nervous system so that the cardia fails to open normally before the advancing esophageal peristaltic wave. Apparently cardiospasm represents an exaggerated and continuous form of such common symptoms as "difficulty in swallowing", "the food sticking in the gullet", and the "lump in the throat", so frequently described after emotional upsets.

5 Spastic colon The symptoms of a spastic or irritable colon and mucous colitis are abdominal pain located usually in the region of the sigmoid flexure, which is steady or spasmodic, and is accompanied by flatulence and alternating periods of constipation and diarrhea. There

It should be strongly emphasized that clinical and pathologic peptic ulcer are by no means synonymous. It has been shown time and again that peptic ulcer of even considerable dimensions may exist without any clinical evidences whatever. A recurrence of peptic ulcer symptoms may not represent the formation of a new ulcer but the activation of a preexisting one.

may be gastric symptoms. Mucus may appear in the stool, or that remarkable symptom complex, mucous colitis, the exaggerated stage, may be encountered. These common maladies are obstinate ones. Radiography reveals abnormal motility and contractures of the various portions of the colon. An actual inflammatory lesion is not found. The cause of mucous colitis has hitherto been considered as unknown, except in certain instances, which are the result of excessive cathartics or are allergic in origin. However clinicians have long realized that patients with these maladies belong to the class of people known by the indifferent term "neurotic", these people are high strung, irritable, and strongly resemble in psychic make up those afflicted with Graves' syndrome and peptic ulcer. Indeed it is interesting to note in this connection that a spastic colon or mucous colitis is not an uncommon accompaniment of these diseases, and that the symptoms disappear with the subsidence of the major or primary disease. Also, as in peptic ulcer and Graves' syndrome the alternations between the periods of health and sickness are closely related to psychic stress. One of the strongest arguments in favor of the purely psychologic origin of spastic colon is the striking relief that can be obtained by pure psychotherapy. Wise clinicians have learned through bitter experience that the last organ to treat in a patient with mucous colitis is the colon itself.

These diseases which I have described have certain features in common

1. There is an exaggeration of function. In essential hypertension there is excess of normal intravascular tension. In Graves' syndrome there is an excess of thyroid function and in all probability a heightened irritability of the autonomic nervous system. In peptic ulcer there is an increase in the normal gastric acidity, an exaggeration of the normal spasticity of the pylorus and an increased peristalsis. In cardiospasm there is an increase in the normal tone of the cardia or at least, a failure of the cardia to relax. In spastic colon there is excess in the action of the colonic musculature and in "mucous colitis" there is an increase in the mucous secretion of the bowel.

2. These diseases are essentially human diseases. With the exception of the very few instances of peptic ulcer these diseases have not yet been observed spontaneously in the lower animals, nor indeed, with the possible exception of peptic ulcer are they capable of being reproduced. Experimentally, attempts have been made to reproduce Graves' syndrome in animals by giving huge doses of thyroid substance or thyroxine. It is true that symptoms of hyperthyroidism are produced, but hyperthyroidism it must be insisted is not synonymous with Graves' syndrome. The latter represents hyper

thyroidism plus the constitutional factor. Peptic ulcer is occasionally reproduced with difficulty and by methods so unphysiological as never to obtain in the human being. There is a very good reason for these diseases being essentially human, because human forces are the instigating factors in their production.

3 Not only are these diseases essentially human diseases, but they only very exceptionally occur before the age when the emotive and reasoning powers become more subtle and adjustments to life become more sensitive and complex. It is rare, therefore, for these diseases to occur before the age of puberty.

4 These diseases are characterized by an extraordinary tendency to recurrence. This is not to be wondered at when one considers that they are part and parcel of a personality and that no matter what treatment is instituted, whether medical or surgical, the human equation, or the constitution, always remains as a potential, which, given the proper stimulus, evokes recurrence. It is extremely difficult in this group of maladies completely to divorce the disease from the ego. The only manner in which a cure may be effected is entirely to remove the offending organ. This ideal is most nearly approximated in partial or subtotal gastrectomy for peptic ulcer. All other gastric operations for ulcer are subject to frequent recurrence. The only other disease in this group that is amenable to surgery is Graves' syndrome, where subtotal thyroidectomy is to-day the operation of choice. Here again a cure in the sense of a complete restitution in integrum is the exception rather than the rule, while recurrences even after the most skillful operation are by no means infrequent. These deficiencies in the results can be very well understood when one considers that thyroidectomy probably does nothing more than remove the hyperthyroidism. The personality remains, and if the patient again comes into the milieu in which the activity of the disease arose, a recurrence is likely.

5 These diseases have a consistent relation with world crises or great emotional waves. We have already called attention to the increasing frequency of essential hypertension and its sequelae as the result of the stress and strain of modern living. It is a notorious fact that the incidence of Graves' disease suddenly increased after the San Francisco earthquake, the Vienna Theatre horror in 1884, and during and after the World War. We have the feeling at Mt. Sinai Hospital that Graves' disease has decidedly increased during the present economic depression. Peptic ulcer seems also in recent years to have a greater incidence,

some form of mental therapy must play a dominant part. It is also obvious that the benefit of such therapy will be of far greater service if it is applied before advanced anatomic changes have taken place. Its main purpose therefore is prophylactic. The kind of mental therapy to be employed is a matter of personal choice. The essential things that matter are a knowledge of the patient's personality and an understanding of the circumstances that brought the disease into being. In other words, the physician must not only know his patient but also his social status. For such a patient the usual history consisting of a mere recital of the symptoms and their sequence is totally inadequate. To diagnose such a patient as "neurotic" and to treat him with placebos is a most reprehensible practice. The proper history must have biological range, and include early influences, the attitude of the patient toward his family and toward society, his aspirations, his day dreams, his loves, his hates, his fears, his economic status and his spiritual life. One must be prepared to overcome many resistances and it may take many sittings before the revelation is complete, but a patient and sympathetic approach will often suffice to obtain the story. Unfortunately, even when a thorough history is obtained it is not always possible to adjust the patient, because the environment, either social or economic, is beyond control, and because the mentality of the patient is not malleable either through age or a natural dullness. We must also remember that the psychological escape very often is more pleasurable than the prospect of a cure. For these reasons the prognosis for cure under these circumstances is not hopeful. The conventional attitude of many of our profession toward psychological origins of disease is either that of sheer ignorance or of indifference. They are not entirely to blame for this, because their training thus far has been entirely on mechanistic lines. They fail to realize that sometimes an emotion is far more devastating for the human frame than a poison or a knife.

A very perplexing problem now confronts us. Why should emotional strain affect one in the vascular system, another in the thyroid gland, and a third in the stomach and so on? Must we assume that there is in addition a constitutional organ inferiority? Or is it rather a species of conversion neurosis, in which the offended organ is determined by early influences? In the light of our present knowledge no definite answer can be given.

The diseases herein discussed do not represent all the maladies of psychogenic origin. For instance I feel confident that certain cases of bronchial asthma, of urticaria and of other diseases of the skin are of psychogenic origin. At present it is difficult to discuss these maladies because of inadequate data.

Therapy It is clear that in the management of diseases so strongly linked with the psyche,

CONCLUSIONS

1. The following diseases of organic nature are discussed because they are regarded as psychogenic in origin a. The vast majority of cases of essential hypertension b Graves' syndrome. c. Gastric and duodenal ulcer d. Cardiospasm. e. Irritable or spastic colon and mucous colitis

2. In the evaluation of the psychogenic factors two elements must be considered, first, the underlying personality or constitution which as a general rule is phenotypic, and secondly, the exciting factor which is in the nature of an emotional insult or conflict.

3. There are three stages in the evolution of the organic disease, first, the constitution secondly, the fixation of an exaggerated function of organ or organs affected, and thirdly, the development of the lesion

4. While the personality type varies in these different diseases there is considerable overlapping in relation to the reaction of the individual to strain and conflict. The emotional crises are not distinctive. Why one organ should be more affected in one individual than the other is not clear

5. These maladies are distinguished by five characteristic features

a. From the physiological point of view they represent exaggerations of normal function

b. They are essentially human diseases and with doubtful exceptions they cannot be produced experimentally in the lower animals.

c. They rarely occur before the emotive and affective powers are fully developed, i.e., before puberty

d. Their life cycle is characterized by a great tendency to recurrence.

e. Their incidence bears a strong relation to world crises or great emotional waves.

6. Psychotherapy is an important element in the treatment of these maladies, obviously its value is largely prophylactic.

REFERENCES

1. Moschowitz, E.: The cause of arteriosclerosis. *Am. J. M. Sc.* 174: 244 1929
2. Moschowitz, E.: Hypertension; its significance, relation to arteriosclerosis and nephritis and etiology. *Am. J. M. Sc.* 153: 882 1919
3. Moschowitz, E.: Nature of Graves disease. *Arch. Int. Med.* 45: 610 1920
4. Lorand, S. and Moschowitz, E.: Psychoanalytic interpretation of constitution in Graves' syndrome. *J. Nerv. & Mental Dis.* 79: 134 1924
5. Westphal and Katsch: *Mitt. a. d. Grenzgebiet d. Med. u. Chir.* 24: 391 1913
6. Tscherning, R.: Über die somatische und psychische Konstitution bei Ulcus ventriculi. *Arch. f. Verdauungskr.* 21: 351 1925
7. Ruhmann, W.: Der Ulkuskranke. *Arch. f. Verdauungskr.* 39: 166 1929
8. Draper, G., and McGraw, R. B.: Studies in human constitution; psychological panel. *Am. J. M. Sc.* 174: 289 1927
9. Draper, G.: Constitution and disease. Nelson New Loose Leaf Encyclopedia of Medicine. V: P 442
10. Burdenko, N., and Mogilnitski, B.: Pathogenesis of some forms of round gastro-intestinal ulcers. *Ztschr. f. d. ges. Neurol. u. Psychiat.* 163: 43, 1926
11. Von Redwitz, and Fues: Die Pathogenese des peptischen Geschwurs des Magens und der oberen Abschnitte. *Stutt. gart.* 19: 3
12. Eisenberg, F. V.: Ueber Magen und Duodenal Blutungen nach Operationen. *Arch. f. klin. Chir.* 59: 827 1899
13. Hauser, Hand. d. Spez. path. Anat. (Henke-Lubarsch) 6: Part 4: 75
14. v. Bergmann, G.: Zur Pathogenese des chronischen Ulcus pepticum. *Berl. klin. Wchnschr.* 55: 524 1918.
15. Winkelstein, A.: Psychogenic factors in cardiospasm. *Am. J. Surg.* 12: 125 1921

HYPERPYREXIA AT THE
BOSTON PSYCHOPATHIC HOSPITAL*

BY SAMUEL H. EPSTEIN, M.D.†

THE history of hyperpyrexia at the Boston Psychopathic Hospital is closely related to the history of the modern developments in the therapy of neurosyphilis. Even before the introduction of malaria in the treatment of general paresis, Doctor Solomon held the view that the febrile reactions sometimes produced by the various older antiluetic agents had in themselves some therapeutic value. This is especially true as regards the intraspinal (Swift-Ellis) treatment which is so frequently accompanied by a febrile reaction. In fact, it is the opinion of many workers that the chief reason for the value of intraspinal treatment of neurosyphilis is the temporary febrile response produced in the patient. Furthermore, the occurrence of a number of stationary arrested cases of general paresis who live for many years in the State Hos-

pitals is attributable to the favorable effect of the hyperpyrexia associated with some intercurrent febrile disease. This was prior to the development of the malaria treatment.

At the present time it is generally conceded that inoculation with malaria is of undoubted value in the treatment of general paresis. There are many favorable reports in the literature of the results from clinics all over the world. In our own clinic at the Psychopathic Hospital a recent survey of 174 paretics treated by this method shows that approximately one half of these patients made a substantial improvement permitting them to live in the community. These patients were under observation for from one to seven years after the fever treatment. The precise mechanism of malarial therapy has never been clearly determined but the febrile element has been a prominent factor. For this reason various mechanical methods of producing artificial fever have been devised in an effort to simulate malarial rises in temperature and bring

*Read at the regular meeting of the New England Physical Therapy Society in Boston, February 21, 1934.

†Epstein, Samuel H.—Assistant in Therapeutic Research, Boston Psychopathic Hospital. For record and address of author see "This Week's Issue," page 621.

about clinical results comparable to or better than those produced by malaria inoculation

Our first experience in mechanically induced fevers was with the super-power diathermy machine produced by the General Electric (Victor) X-Ray Corporation for this special purpose. The original technique was altered after our first experimentations with the electrodes and the machine, and a brief description of our present method may be given in order to illustrate some new points of technique devised by us.

At the start of our work we used the G. E. electrodes (Neymann type), consisting of three rubber-backed fenestrated metal plates adjusted on the chest, abdomen, and the back, and held in place by a canvas corset. These were soon discarded because of the frequency of burns and the short life of the electrode material. After considerable experimentation with different materials we devised a set of cuff and belt electrodes consisting of chromium plated brass plates, segmented and hinged to fit the individual patient. These are clasped around the arms, thighs, and abdomen, and each of the five electrodes has a separate wire lead from the diathermy machine, the abdomen and both arms being in one circuit, and both thighs in the other. The patient lies on a special bed and is completely covered by a large celotex box, the head only being exposed. The box is lined with electric light bulbs and the hot air within serves as a very satisfactory method of insulation, in place of the bundle of blankets and cellulocotton originally used. The patient's temperature is recorded continuously by a rectal thermometer of the resistance type (Leeds & Northrup) and is plotted automatically on a graph paper. Within an hour the temperature is brought up to the desired peak between 104° and 105° F at which time the current in the diathermy machine is shut off, the insulating box is removed, and the temperature returns to its original level in about an hour and a half. By means of the insulating box the blanket of hot air surrounding the patient's body is sufficient to maintain, if desired, the patient's temperature at the high level for several hours after the current from the diathermy machine is cut off.

It is still a debatable point as to whether the prolonged type of temperature curve gives better therapeutic results than the shorter up and down type. Our own treatment results do not throw any significant light on this point. Those patients who had been treated with short attacks of fever appear to do as well clinically as some other patients whose hyperpyrexia treatments were prolonged for several hours. As a rule, the patients receive a course of twelve to fifteen treatments, administered every other day. The clinical results of this method of treatment do not differ appreciably from the results obtained by malaria inoculations, but it is as yet

too early to evaluate the end results of the diathermy treatment of neurosyphilis.

More recently we have employed another device for the production of artificial fever. This is much simpler than the diathermy method and is based on the principle of external heat rather than electrical resistance. It is an electric blanket and resembles a large heating pad unit. The equipment consists of an active unit or heating element in the form of a rubberized blanket with a fine wire mesh, which provides the heat and may be used on either alternating or direct current. In order to avoid direct contact with the heating unit, the patient is placed in a treatment bag made up in the manner of a sleeping bag and equipped with "zippers" around three sides, except a space at the top to accommodate the patient's neck. This bag is covered with waterproof material and is insulated to remove the patient from close contact with the electric blanket. Within the bag there is provided a terry-cloth bath sheet which permits the absorption of sweat as it comes from the patient's body. The electric blanket is first "pre-heated" for a sufficient period to show a temperature of from 115° to 120° F, registered by a thermometer mounted on a rheostat, which controls the amount of current passing through the blanket. The patient is then placed within the bag and covered by the heating unit, and the treatment proceeds. The patient's temperature is taken at frequent intervals either by axilla or mouth. In the course of about two hours the temperature reaches 104° - 105° F, where it may be maintained for several hours by adjusting the rheostat and keeping the patient covered. If it is not desired to maintain the temperature for any length of time it may be allowed to fall by removing the coverings and permitting the rapid radiation of heat. It is rarely necessary to use an electric fan or apply cold wet cloths to reduce the body temperature.

The advantages of the electric blanket method of producing hyperpyrexia over the diathermy method are at once obvious. It is a simple, inexpensive equipment and easy to handle, in contrast to the equipment necessary for diathermy treatment. The latter involves a large initial expense for the machine and its installation and requires alternating current, and it is a stationary equipment. The electric blanket, on the other hand, may be easily transported to other hospitals and to the patient's bedside and is therefore available to patients who may be in the private wards of general hospitals.

There are other methods of artificial hyperpyrexia in use elsewhere. Hot baths serve to raise body temperature, but the procedure is exhausting to the patient and sometimes dangerous. Hot air is also used but not very satisfactorily. The use of the ordinary electric cabinet has been suggested, and there is at present a machine on the market, called the Hy-

porpyrexator, which is a very elaborate and expensive cabinet equipped with a heating coil and a humidity trough. This is quite satisfactory but needlessly elaborate since the same effects may be produced in a modification of the ordinary electric cabinet. Sulphur injections and typhoid vaccine inoculations are of course well known fever producing agents based on the principle of non specific protein shock. Finally, the new method of radiotherapy is available in some clinics, but the disadvantages from the standpoint of expense are even greater in this form of hyperpyrexia than in diathermy.

In regard to the subjective reactions on the part of the patient in the various forms of fever therapy, I would say that the response to the electric blanket method is quite satisfactory. In the use of diathermy, there is always the danger of burns on account of the intimate contact of the electrodes with the skin of the patient. I am

gratified to state that with the development of our new cuff electrodes the likelihood of burns has been practically eliminated. However there is always the potential danger, and one must be ever careful to prevent burns in using any type of electrode with diathermy current. As for the electric blanket, the abolition of metal contact surfaces and the absence of any friction points make it a very desirable instrument of therapy.

In the light of our experiences at the Boston Psychopathic Hospital, I would emphasize the complete adequacy of the simpler methods of artificial hyperpyrexia, such as the electric blanket, the cabinet, etc. The elaborate methods originally devised are apparently not necessary for the production of hyperpyrexia, and it is possible that the complicated methods of diathermy and radiotherapy may in the future be replaced by the simpler devices.

PASTEURIZATION AND THE COURTS*

BY JAMES A. TOBEY, PH.D.†

PASTEURIZATION of milk is now generally recognized both legally and scientifically as an essential feature of good dairy practice. Physicians, health officers, agricultural scientists, nutritional authorities, judges, and leaders in the dairy industry are all agreed that modern pasteurization sets the final seal of safety on a clean milk supply, and that this process does not appreciably impair the unsurpassed nutritional qualities of this indispensable food.

The most rabid of the few remaining proponents of raw market milk will concede that heating of milk for thirty minutes at a uniform temperature of 143 degrees Fahrenheit will destroy the most resistant strains of any pathogenic organisms that may be present. A few die-hards among the advocates of raw milk still assert, however, that pasteurization has some detrimental effect upon the food value of milk. The fallacy of this claim has been pointed out recently by McCollum¹, and during the past decade by numerous other scientists², who have demonstrated conclusively that the effects of pasteurized and raw milks are virtually equivalent in human nutrition.

Because of the undeniable significance of pasteurization to public health, laws requiring and regulating this desirable process have been adopted in many communities in the United States. The legality of such statutes, ordinances, and regulations has come before the courts on a number of occasions, with the gratifying result that almost invariably the judiciary has recognized the validity of these re-

quirements and has sustained all reasonable provisions for the pasteurization of market milk. There have been one or two adverse decisions, but they have been due to legal technicalities rather than to any flaws in the scientific or public health principles involved.

During the twenty years since 1914, the courts of last resort in eleven states have had before them fourteen causes of action in which it was necessary to adjudicate the constitutionality or validity of municipal ordinances or health department regulations concerning pasteurization. In 1927 there had been reported only six such decisions, which were reviewed by the author in a paper delivered in that year before the Conference of State and Provincial Health Authorities of North America³. The eight subsequent decisions have not altered the general legal principles enunciated in 1927, although they have brought out several new points of interest and significance.

The first recorded decision on pasteurization was handed down in 1914 by the Supreme Court of Illinois in a case⁴ involving a municipal ordinance of the City of Chicago. This ordinance required that pasteurizing machinery be equipped with a recording thermometer, a provision contested by a local milk dealer on the ground that it was unreasonable. The court decided, however, that a city having the power to require pasteurization of milk is not limited to the imposition of a penalty for violation of this requirement, but may prescribe the conditions under which pasteurization shall be carried out. The power of the city to require pasteurization of milk was not questioned in this case, but was inferentially sustained by the decision.

The power of a city to require pasteuriza-

*Read before the International Association of Dairy and Milk Inspectors, Boston, Mass., October 11, 1934.

†Tobey, James A.—Director of Health Service, The Borden Company. For record and address of author see "This Week's Issue," page 613.

tion was, however, the moot point in the next decision on this subject, a case decided by the Supreme Court of Wisconsin in 1920⁵. In this case an ordinance of the City of Milwaukee, which provided that all milk sold in the city should be either certified milk, milk from tuberculin tested cattle, or pasteurized milk, was attacked by a group of dealers who claimed that pasteurization did not really promote the public health. The court disagreed with this absurd contention, saying that judicial notice would be taken of the facts that milk is easily infected with the germs of disease, is dangerous when thus contaminated, and that pasteurization destroys disease-producing organisms. Whereupon the court pronounced the ordinance in question to be a proper regulation of the municipal milk supply, and valid as a wise regulation to protect the health of the people.

The sagacious rule laid down in this leading case, that pasteurization of milk is a reasonable requirement in the interests of the public health, was followed in three other decisions handed down in the next few years in New York and North Carolina. In two cases in New York⁶, decided in 1921 and 1922, the rule was stated to apply with equal validity to the regulations of city boards of health, adopted in conformity to law, and requiring that only certified or grade A pasteurized milk should be sold. In one of these decisions, the court pointed out that "For adults pasteurized milk is fully as nutritious as raw milk and digestibility of the two is the same."

The North Carolina case⁷, decided in 1924, not only followed the legal principles of the prior Illinois and Wisconsin decisions, but went one step farther in upholding a municipal ordinance requiring *all* milk sold in the city to be pasteurized. A few years later the judiciary displayed even greater liberality in sustaining health laws of this nature, when courts of final appeal in New York and California upheld the rather drastic requirement that milk should be pasteurized within the city where it was sold. In the New York case⁸, the court stated that such a city ordinance is not discriminatory, unreasonable, or unconstitutional and that its enforcement does not unlawfully interfere with property rights or hinder lawful trade, while in the California case⁹, the court called attention to the fact that failure to enforce a similar ordinance in the City of San Francisco would seriously impair the efficiency of the entire inspection service.

This same legal principle does not, however, hold good in all states. In 1933 an ordinance of the City of Minneapolis, providing that no person should sell pasteurized milk in the city unless pasteurized within the city, was held void as unreasonable and as a violation of a dealer's constitutional rights of property and contract¹⁰.

The court felt that it was convenient for the city to inspect milk plants beyond the city limits, and that a reasonable fee could be charged for this service. There is something to be said in support of this position, because the location of a pasteurization plant is, within reasonable limitations, far less important to the public health than the care, skill, and probity with which it is operated.

A municipal ordinance classifying milk dealers into three classes, and imposing higher fees for inspection upon those offering raw milk for sale than upon those selling pasteurized milk or milk to be pasteurized was upheld in 1931 by the Supreme Court of Oklahoma¹¹. In holding that such a classification was not discriminatory, the court stated, "Public health regulations and the authorities on public health agree that the process of pasteurization is such as to kill bacteria existing in milk", and also, "It is obvious that milk heated to the degree and for the time shown by the record to be used in the pasteurizing plans in question requires less inspection and regulation prior to its delivery to the pasteurizing plants than raw milk offered for sale to consumers."

Judicial notice of the value of pasteurization was taken in a Rhode Island case¹² in 1931, in which a milk dealer in Vermont sought to enjoin the operation of a state law requiring all milk sold as pasteurized milk to be pasteurized within the state. Because of defects in the pleading of the cause by the state officials, the Supreme Court refused to pass on the constitutionality of this law and remanded the case to the lower tribunal. "We may," said the court, "also take judicial notice of the fact that pasteurization is one of the accepted methods of protecting the public in the use of this essential article of diet, but we may not extend the principle of judicial notice to the methods and technique of the process."

In a few instances the courts apparently have been willing to uphold pasteurization, but have been unable to do so because of unavoidable legal technicalities. An example is a Connecticut case¹³, decided in 1930, in which a city ordinance requiring that all milk sold in the city after January 1, 1929 should be either pasteurized or from tuberculin-tested cattle, was found to be in direct conflict with a state law which permitted the sale of raw milk under certain conditions. In a divided opinion, the Chief Justice, speaking for the majority of the court, stated that the merit or reasonableness of pasteurization was not under consideration, as that was a matter for legislative rather than judicial determination. In the previous year this court had refused to issue a writ of mandamus to the same plaintiff to compel issuance of a license to sell milk under the city ordinance.

which was subsequently held invalid¹⁴. The two cases seem inconsistent, although the later one prevails in law.

To the same effect as the Connecticut case holding an ordinance invalid because it was in conflict with a state law is a recent Colorado decision¹⁵. In this instance, the manager of health and charity of the City and County of Denver had issued an order prohibiting the sale of unpasteurized milk after a certain date. While undoubtedly justified in the interests of public health, this order happened to conflict with a local ordinance which specifically allowed the sale of raw milk of a certain standard. For this reason, the order was held to be null and void as a usurpation of the law making powers of the legislative branch of the government.

These two cases are not adverse to pasteurization, but merely emphasize certain established rules of administrative procedure. While health officials are usually granted expressly or by implication the power to make reasonable rules and regulations to carry out the purposes of health legislation, and while municipalities are given broad powers with respect to the control of public health, in neither instance can there be contravention of the laws promulgated by a higher authority. Health officials will do well to bear in mind the cogent principle that a city cannot forbid what the state authorizes, nor can a health officer or milk inspector prohibit what the city allows¹⁶.

From this review of the court decisions on pasteurization, it is obvious that the weight of legal authority is in favor of this process as a reasonable measure to aid in the promotion of the public health. There is, nevertheless one decision that is directly contrary to all of the others. This is a Missouri case¹⁷, decided in 1926 in which the Supreme Court of that state reached the conclusion, from the evidence submitted that raw milk "as a general thing is more nutritious, easier assimilated, and better food especially for children, than pasteurized milk, though it is probable that some individuals may thrive better on pasteurized and boiled milk than on raw milk." For these reasons or alleged reasons, and because a state law defined raw milk the court held that a city ordinance purporting to require pasteurization was unconstitutional.

Although the court's opinion in this case with regard to the relative merits of raw and pasteurized milk is not in accordance with the consensus of scientific opinion there was considerable legal justification for the outcome of this particular case. The ordinance in question was defectively worded the evidence presented in support of it was inadequate and rather incompetent, and the whole case apparently was handled in such a crass manner by the city authorities that no conscientious jurist could have ruled otherwise. The court called attention to

the fact that it might have been shown that the sale of raw milk in St. Louis was injurious to health, and that pasteurization was reasonable, but that this proposition was not supported by facts.

This one decision in favor of raw milk, as opposed to the safer pasteurized milk, may set a legal precedent for Missouri, but since it is contrary to the weight of authority in other jurisdictions, it should not be regarded as a persuasive contribution to our unwritten law. It is now an established rule of law in this country that some or all of the milk supply of a municipality may be required to be pasteurized in accordance with methods approved by the health authorities.

"Milk is in universal use as a food," said the Chief Justice of Connecticut in an admirable epitome of the legal principles of milk control¹⁸.

"It is peculiarly liable to contamination and adulteration. Therefore in the interest of public health and safety the regulation of its production, marketing and sale are held to be within the proper exercise of the police power of the state. This the state may effectuate directly by its statute, or it may delegate its regulatory power to an official board or officer, or to a municipality. It may exercise this power directly and completely, or it may delegate it directly or completely to either of these agencies, or it may act in the exercise of this regulatory power in concurrence with the municipality. The state may determine the standard of quality, prohibit the production sale, or distribution of milk not within the standard divide it into classes and regulate the manner of their use, so long as these standards, classes, and regulatory provisions be neither unreasonable nor oppressive. The many recorded instances in which the courts have sustained this power of regulation bear witness to the liberality of their view point where the public health and safety are concerned. If there be room for a reasonable difference of view as to the legislative prohibition, classification or regulatory provisions, courts will accept the legislative determination and not impose their own will."

The decisions cited above and the many others on various aspects of milk control that could be cited demonstrate that the judiciary realizes what scientists know that milk is the most important food of mankind¹⁹ and that every reasonable effort to insure its purity and safety contributes to the improvement of the public health and thus is of primary interest and importance to the general welfare.

REFERENCES

1. McCollum, E. V.: The nutritional aspects of milk pasteurization. *Am. J. Pub. Health*, 4:566 (September) 1924.
2. White House Conference on Child Health and Protection. *Milk Production and Control*. Century, 1923.
3. Tobey, J. A.: Court decisions on pasteurization. Reprint No. 1148. U. S. Pub. Health Service, 1927.
4. *Kay v. Chicago*, (1914) 248 Ill. 122 164 N. E. 1104 Ann. Cas. 1915, C. 67.

- 5 *Pfeffer v City of Milwaukee* (1920) 171 Wis 514 177 N W 850 10 A. L. R. 128
 6 *People v McGowan* (1921) 118 Misc. 828 195 N Y S 286 affirm in 200 App Div 836 191 N Y S 946
Moll v Lockport (1922) 194 N Y S 250
 7 *State v Edwards* (1924) 187 N C. 259 121 S E 444
 8 *Lang's Creamery v Niagara Falls* (1928), 231 N Y S 368 224 App Div 483 affirm in 251 N Y 343 167 N E 464
 9 *Witt v Klimm* (Calif 1929) 274 P 1039
 10 *Larson v City of Minneapolis* (Minn. 1933) 251 N W 121.
 11 *Stephens v Oklahoma City* (Okla. 1931) 1 P (2d) 867
 12 *First National Stores v Lewis* (R. I. 1931) 155 A 534

- 13 *Shelton v City of Shelton* (Conn. 1930) 150 A. 811.
 14 *State ex rel Shelton v Edwards* (Conn 1929) 146 A 382
 15 *City and County of Denver v Gibson* (Colo 1933) 24 P (2d) 761
 16 *Tobey J A Public Health Law* Williams & Wilkins 1926
 17 *State ex rel Knese v Kinsey* (1926) 314 Mo 80 282 S W 437
 18 *Crumbine S J and Tobey J A. The Most Nearly Perfect Food* Baltimore Williams & Wilkins 1929 Also *Tobey J A. Milk. The Indispensable Food.* Milwaukee, Olsen 1933

AMERICAN MEDICAL GOLFERS PLAY IN ATLANTIC CITY, MONDAY, JUNE 10, 1935

The American Medical Golfing Association will hold its twenty-first annual tournament at the Northfield Country Club in Atlantic City on Monday, June 10, 1935

Thirty six holes of golf will be played in competition for the seventy trophies and prizes in the nine events. Trophies will be awarded for the Association Championship, thirty six holes gross, The Will Walter Trophy, the Association Handicap Championship, thirty six holes net, The Detroit Trophy, the Championship Flight, First Gross, thirty six holes, The St Louis Trophy, the Championship Flight, First Net, thirty six holes, The Presidents Trophy, the Eighteen Hole Championship, The Golden State Trophy, the Eighteen Hole Handicap Championship, The Ben Thomas Trophy, the Maturity Event, limited to Fellows over 60 years of age, The Minneapolis Trophy, the Oldguard Championship, limited to competition of past presidents, The Wendell Phillips Trophy, and the Kickers Handicap, The Wisconsin Trophy. Other events and prizes will be announced at the first tee

A. M. G. A. MEMBERS IN EVERY STATE OF THE UNION

Dr Charles Lukens of Toledo is president and Dr C H Henninger of Pittsburgh and Dr John B Morgan of Cleveland are vice presidents of the American Medical Golfing Association, which was organized in 1915 by Dr Will Walter, Dr Wendell Phillips and Dr Gene Lewis, and now totals 1,100 members representing every state in the union. The living past presidents include Dr Thomas Hubbard of Toledo, Dr Fred Bailey of St Louis, Dr Edward Martin of Media, Pa., Dr Robert Moss of LaGrange, Texas, Dr Charlton Wallace of New York, Dr Will Walter of Chicago and Charlottesville, Va., Dr James Eaves of Oakland, Calif., Dr Chester Brown of Danbury, Conn., Dr Samuel Childs of Denver,

Dr W D Sheldon of Rochester, Minn., Dr Walter Schaller of San Francisco, Dr Edwin Zabriskie of New York, Dr Frank A. Kelly of Detroit, Dr John Welsh Croskey of Philadelphia, and Dr Homer K Nicoll of Chicago. The first president of the A. M. G. A., Dr Wendell Phillips of New York, who played in every tournament since 1915, died on November 16, 1934

ATLANTIC CITY COMMITTEE

The Atlantic City Committee is under the chairmanship of Dr Walt P Conaway, 1723 Pacific Avenue, Atlantic City. He will be assisted by Drs I R Beir, John Pennington, Alfred Westney, and Rostin White

The Northfield Country Club of Atlantic City is described by Chairman Conaway as "certainly one of the most interesting courses in this district. Many championships have been held at Northfield, and I am sure the visiting doctors will be delighted with it in every sense of the word. It has a beautiful club house with every facility ready for the pleasure of the guest"

APPLICATION FOR MEMBERSHIP

All male Fellows of the American Medical Association are eligible and cordially invited to become members of the A. M. G. A. Write the Executive Secretary, Bill Burns 4421 Woodward Avenue, Detroit, for an application blank. Participants in the A. M. G. A. tournament are required to furnish their home club handicap, signed by the secretary. No handicap over 25 is allowed except in the Kickers' (Blind Bogey). Only active members of the A. M. G. A. may compete for prizes. No trophy is awarded a Fellow who is absent from the annual dinner.

The twenty first tournament of the American Medical Golfing Association promises to be a happy affair. The officers anticipate that some two hundred medical golfers from all parts of the United States and Canada will attend.

The Massachusetts Medical Society

PROCEEDINGS OF THE COUNCIL

Stated Meeting, February 6, 1935

A STATED MEETING of the Council was held in John Ware Hall, Boston Medical Library, on Wednesday, February 6, 1935 at 12 o'clock noon. The President, Dr William H. Robey (Suffolk) was in the chair and the following 162 Councilors present

BARNSTABLE

Samuel M. Beale Jr
W D Kinney

BERKSHIRE

I S F Dodd
H J Downey
William T Frawley

BRISTOL NORTH

William H. Allen
Arthur R. Crandell
Frederick V Murphy

BRISTOL SOUTH

George W. Blood
E. F. Cody
Edwin D. Gardner
Curtis Tripp
P E Truesdale

ESSEX NORTH

R S Bagnall
R V Baketel
J Forrest Burnham
Arthur P. George
Thomas R. Healy
B. P. Laskey
John J. McArdle
F W Snow
Leroy T. Stokes
W D Walker

ESSEX SOUTH

F W Baldwin
Nathaniel P. Breed
J Frank Donaldson
Ralph E. Foss
Edward B. Hallett
Charles L. Holitt
J F Jordan
Olin S. Pottingill
Walter G. Phippen
J W Trask

FRANKLIN

H G Stetson
Allen H Wright

HAMPDEN

J M. Birnie
W A. R. Chapin
A J Douglas
Frederic Hagler
M W Pearson
George L. Schadt
G L Steele

MIDDLESEX EAST

J Harper Blaisdell
Richard Dutton
Joseph H. Fay
Edward M. Halligan
K. L. MacLachlan
E E. Tyxser

MIDDLESEX NORTH

M. L. Alling
Archibald R. Gardner
George A. Leahey
T A. Stamas
M A. Tighe

MIDDLESEX SOUTH

Charles F. Atwood
Elmer W. Barron
Charles F. K. Bean
Allen H. Blake
George F. H. Bowers
Charles O. Chase
Frank R. Clark
A. C. Cummings
D F Cummings
A. W. Dudley
H Q. Gallupe
Wilfred G. Grandison
N M. Hunter
Charles M. Hutchinson
Arthur M. Jackson
Josephine D. Kable
Alexander A. Levi
F P. Lowry
L W. McGuire
John A. McLean
Edward Mellus
Charles E. Mongan
Frank L. Morse
John P. Nelligan
Dwight O'Hara
Charles T. Porter
Ezekiel Pratt
W D. Reid
M. James Shaughnessy
Frederick G. Smith
Clarence H. Staples
Horace P. Stevens
H W. Thayer
F Van Nuy
W. Stewart Whittemore

NORFOLK

H. Baker
F G. Balch
Hollis G. Batchelder
A. S. Begg

David N. Blakely
Horace K. Boutwell
David G. Eldridge
I A. Finkelstein
Alice M. Gray
J B. Hall
Charles J. Kickham
W A. Lane
J S H. Leard
F W. Marlow Jr
J S. May
Sylvester F. McKeen
Hyman Morrison
Benjamin Parvey
Cadis Phipps
Victor Safford
H. F. R. Watts

NORFOLK SOUTH

Charles S. Adams
George V. Higgins
Frederick E. Jones
O A. Sullivan

PLYMOUTH

Leon A. Alley
P H. Leavitt
George A. Moore
Alfred C. Smith

SUFFOLK

Arthur W. Allen
A. E. Austin
John W. Bartol
Gerald Blake
W B. Breed
Charles S. Butler
David Cheever
Fletcher H. Colby

Frederic J. Cotton
Lincoln Davis
G P. Denny
R. L. DeNormandie
Reginald Fitz
C. Frothingham
H T. Hutchins
Elliott P. Joalin
Roger I. Lee
G A. Leland
George B. Magrath
A. K. Paine
Francis W. Palfrey
George P. Reynolds
W H. Robey
George C. Shattuck
Louisa Paine Tingley
J R. Torbert
H P. Towle
Conrad Wesselhoeft

WORCESTER

James C. Austin
Walter P. Bowers
L R. Bragg
George E. Emery
D. Harrower
Ernest L. Hunt
Edwin R. Leib
W W. Marsh
Erwin C. Miller
J W. O'Connor
Walter C. Seelye
Edward H. Trowbridge
F H. Washburn
Royal P. Watkins
S B. Woodward

WORCESTER NORTH

C. Bertram Gay
H R. Nye

Following a motion by Dr Stetson, Franklin, it was voted to accept the records of the last meeting as printed. Dr Robey explained that because of the death of Dr Burrage it was necessary to appoint a Secretary Pro Tem and he had chosen Dr Alexander S. Begg for the position.

President Robey then read the following obituaries

DR. WALTER LINCOLN BURRAGE of 182 Walnut Street, Brookline, died suddenly January 26, 1935

He was born in Boston, Massachusetts, October 21, 1860, the son of Alvah Augustus and Elizabeth Amelia (Smith) Burrage. At Harvard he received his Bachelor of Arts degree in 1883 and his Master of Arts in 1888, in the same year he received his Doctor of Medicine degree at the Harvard Medical School. He mar

Hartshorn and Walter
Certified Public Accountants
50 Congress Street
Boston

January 31, 1935

The Auditing Committee

Dr John W Cummin and Dr Richard M Smith,
The Massachusetts Medical Society,
Boston, Massachusetts

Gentlemen

At the request of your Treasurer, Dr. Charles S Butler, we have audited the books and accounts of The Massachusetts Medical Society for the twelve months ended December 31, 1934 and submit herewith

Schedule A Statement showing the Assets and Liabilities of The Massachusetts Medical Society, December 31, 1934

Schedule B Statement showing the Current Account of The Massachusetts Medical Society for the twelve months ended December 31, 1934

The cash on deposit in the banks has been reconciled with the bank statements and found correct.

All known cash receipts have been properly accounted for and disbursements are supported by vouchers or cancelled checks

We have made no examination of the securities, but are informed by Dr Butler that you have personally examined these securities also the savings bank books and found them correct

The attached statements showing the financial condition of the Society on December 31, 1934 and the Current Account for the twelve months ended December 31, 1934 are true, to the best of our knowledge and belief

Respectfully submitted,

HARTSHORN & WALTER

TREASURER'S REPORT

Showing the Assets and Liabilities of the
Massachusetts Medical Society
December 31, 1934

SCHEDULE A

Assets		
Cash		
Merchants National Bank	\$2 801 32	
New England Trust Co	5,617 70	
		\$8 419 02
Investments	157 908 85	
New England Journal of Medicine	1 00	
Total		\$166 328 87
Liabilities		
Endowment Funds		
Shattuck Fund		
G C Shattuck 1854-1866	\$9,166 87	
Phillips Fund		
Jonathan Phillips 1860	10 000 00	
Cotting Fund		
B E Cotting \$1,000—1876-1881-1887	3 000 00	
		\$22,166 87
Building Fund		
Principal	\$51 486 25	
Income Uninvested	2 284 04	
		53 770 29
Postgraduate Course—		
Unexpended Income	4 282 27	
General Fund		
Balance January 1 1934	\$80 014 26	
Add—Increase for the Twelve Months ended December 31, 1934	6 095 18	
Balance, December 31 1934		86 109 44
Total		\$166 328 87

INVESTMENTS

December 31, 1934

SCHEDULE A EXHIBIT 1

Endowment Funds	Investment	Income
Shattuck Fund		
Annuity Policy — Massachusetts Hospital Life Insurance Co	\$9,166 87	\$275 01
Phillips Fund		
\$10 000 Commonwealth of Massachusetts 3½s Jan 1, 1944	10,000 00	350 00
Cotting Fund		
Deposit—Institution for Savings in Roxbury	1,000 00	30 00
Deposit — Provident Institution for Savings—Boston	1,000 00	30 00
Deposit—Suffolk Savings Bank — Boston	1,000 00	30 00
Totals	\$22,166 87	\$715 01
Building Fund		
Cash—New England Trust Co	\$2 284 04	
Deposit — Framingham National Bank Savings Dept	825 61	9 47
Deposit—Franklin Savings Bank	1,404 25	44 53
\$1,000 Canadian National Ry 5s Oct 1, 1929	990 00	50 58
Canadian National Ry 5s Oct 1 1929 (\$4,000 Sold)		227 52
5,000 Conveyancers Title Insurance & Mortgage Co 4½s Parti-Mortgage Oct 31, 1939 (In default)	5,000 00	
5,000 Chicago R I & Pacific Ry 1st 4s April 1, 1934 (In default)	4,785 00	46 95
1,000 Cincinnati Union Terminal, First Mortgage Series C 5s May 1, 1937 (Guaranteed)	1,000 00	50 00
2,000 Commonwealth of Massachusetts 3½s July 1, 1935 reg	1,907 60	70 00
1,000 Commonwealth of Massachusetts 3½s Jan 1, 1936, reg	1,002 50	35 00
1,000 City of Peabody Mass 3½s Aug 15, 1935 (Purchased May 1, 1934)	1,000 00	10 11
1,000 City of St Paul 4s Feb 1 1939 (Purchased May 28 1934)	1,020 00	7 00
1,000 City of Newburyport Mass 2s Nov 1 1937 (Purchased Nov 15 1934)	1,001 50	78*
1,000 City of Quincy, Mass 3½s 1943 (Purchased Nov 27, 1934)	1,020 00	2 53*
1 000 Edison Electric Illuminating Co of Boston 5s Apr 15, 1926	990 00	50 00
1,500 N Y Chicago & St Louis Ry 6s Notes Oct 1 1935	1,500 00	90 00
2,000 Northern Ohio Traction & Light Co Gen'l & Ref Series A 6s March 1, 1947	1,886 50	120 00
1,000 U S Treasury 2½s Mar 15 1935 (Purchased Jan 29, 1934)	1,000 00	8 11
1,000 U S A Certificate 1 1½s June 15 1936 (Purchased Dec. 15 1934)	1,000 00	
Boston Medical Library Note 4½% due Apr 1, 1935	24 703 29	1,111 64
Total	\$53,770 20	\$1,922 58
*Interest paid out		
General Fund		
Deposit—Franklin Savings Bank	\$1 074 48	\$34 01
American Tel & Tel Co Deb 5½s Nov 1943 (\$1 000 Sold Oct 1934)		54 24
3 000 Appalachian Electric Power Co 1st & Ref 5s May 1, 1936	2,910 00	150 00
2,000 Attleboro, Mass 3½s Mar 1 1935	1,978 00	70 00
1,000 Boston & Albany R. R. 4s May 1 1935	995 00	40 00
City of Melrose 1½s Dec 18, 1934		43 37
2 000 Cedars Rapids Mfg & Power Co 1st 5s Jan 1, 1953	1 870 00	100 00
Cedars Rapids Mfg & Power Co 1st 5s Jan 1 1953 (\$1,000 sold Nov. 1934)		67 64
3 000 Central Power & Light Co 1st 5s Aug 1 1936	2,730 00	150 00
City of Springfield 4s Jan. 1, 1934		56 00
1,000 Chicago, Burlington & Quincy R. R. 1st & Ref 5s A Feb 1 1971	970 00	50 00

1,000 Commonwealth Edison 1st Mortgage 5½s June 1, 1932	\$27.50	55 00
3,000 Commonwealth of Australia 5s July 15 1935	2,335 00	150 00
4,000 Commonwealth of Massachusetts 3½s July 1 1935 reg	4 000 00	140 00
1 000 Commonwealth of Massachusetts 3½s July 1 1935 reg	953 80	35 00
3 000 Commonwealth of Massachusetts 3½s July 1 1935 reg	3 015 00	105 00
1,000 Commonwealth of Massachusetts 3½s Jan 1 1941 reg.	1,000 00	35 00
2,000 Commonwealth of Massachusetts 3½s Nov 1 1935 reg.	2,017 31	61 35
2,000 Conveyancers Title Insurance & Mortgage Co 4½s Dec. 1, 1937 (In Default)	2,000 00	
1,000 Connecticut River Power Co 1st Mtge. 5s Oct. 1 1932	940 00	50 00
3 000 City of Cambridge 3½s Dec. 1937	3 009.35	61.35
City of Milwaukee 4½s Jan. 1 1934		23 50
2,000 Cons. G. E. L. & Power of Baltimore 4½s Feb 14 1935	2,025 00	2.00
2,000 Dayton Power & Light 1st Ref. 6s June 1, 1941	2,797 50	150 00
1,000 Edison Electric Illuminating Co of Boston 5s Apr 15 1938	930 00	50 00
1 000 Edison Electric Illuminating Co. of Boston 3s 1937	1 000 00	
2,000 Great Northern Ry. Co. Gen'l B 5½s Jan 1 1932	1 932.50	110 00
1,000 Georgia Power Co. 1st Ref. 5s Mar 1 1937	862.50	50 00
3 000 Guarantee Title & Trust Corp 5½s Oct. 1, 1938 (In Default)	3 000 00	
3 000 International Paper Co Ref. Series A 5s Mar 1, 1935	3 078 00	180 00
2,000 Metropolitan Ice Co. 1st Mtge. 7s Jan. 1, 1934	2 100.00	140 00
1,000 Narragansett Electric Co. 1st Mtge Series A 5s Jan. 1, 1937	960 00	50 00
1 000 Narragansett Electric Co 1st Mtge. June 1938 Series C 750 N Y Chicago & St. Louis R. R. 6% Notes Oct. 1, 1935	982.50	50 00
1 000 Peoples Gas Light & Coke Co 1st & Ref. 6s June 1 1937	750 00	45 00
4,000 Public Service Co. of N. H. 1st & Ref 5s Oct. 1 1935	957 50	60 00
1 000 Rockland Light & Power Co. 1st Ref & 4½s May 1938	2 540 00	200 00
1,000 So Pacific (Ore. Lines) 1st Mtge. A 4½s Mar 1, 1937	935 00	45 00
1,000 So Pacific (Ore Lines) 1st Mtge. A 4½s Mar 1, 1937	875 00	45 00
3 000 U. S. Cold Storage Co. 1st Mtge. 6s Jan. 1945	730 00	45 00
2,200 U. S. Treasury 4½s Oct. 15 1943 45	3 000 00	180 00
1 000 U. S. Liberty 4½s June 15 1932 47	2,000 00	120 00
2,000 U. S. Treasury 3½s June 15 1938	990 00	42.50
2 000 U. S. Treasury 3½s Aug 1 1941	3 000 00	57 50
1 000 U. S. Treasury 4½s 3½s Oct. 15 1943-45	2,000 00	61.53
2,000 U. S. Treasury 4½s 3½s Oct. 15 1943 45	1 015 00	48 50
1 000 U. S. Treasury ½s Mar 15 1935	2,076.25	85 00
1 000 U. S. Treasury 3s Feb. 15 1937	1,000 00	28 11
2,000 U. S. Rubber Co 1st & Ref 5s Jan 1 1947	2,000 00	29 34
3,000 Wilson Co. Inc. 1st 6s Apr 1 1941	1,735.50	100 00
New York Central Lines 5s June 1 1934	3,008 00	180 00
New York Central Lines 4½s Sept. 1 1934		13 85
New York Ch. & St. L. R. R. 5s Aug 1, 1934		22.00
Totals	\$21,971.69	\$3 694 53
Interest paid out.		
Summary		
Endowment Funds	\$22,166 87	\$715 01
Building Fund	51,770 29	
General Fund	81 971 69	3 694 53
Totals	\$157 908.85	\$4,409 54

Note The Income from Building Fund amounting to \$1,922 58 has been transferred to Building Fund.

BUILDING FUND	
December 31 1934	
SCHEDULE A EXHIBIT 2	
Balance, January 1 1934	\$50 789.51
Add—Income from Securities	\$1 922.58
Profit on Sale of Securities	724.57
George W. Gay Legacy	333 33
	2 980 48
Balance, December 31 1934	\$53 770 29

STATEMENT	
Showing the Current Account of The Massachusetts Medical Society for the Twelve Months Ended December 31 1934	

SCHEDULE B	
Revenue	
Assessments Received by District Treasurers:	
Barnstable	\$410 00
Berkshire	1 114 00
Bristol North	660 00
Bristol South	1 810 00
Essex North	0 2 00
Essex South	2,278 00
Franklin	260 00
Hampden	2,580 00
Hampshire	670 00
Middlesex East	1 090 00
Middlesex North	1 125 00
Middlesex South	7 537 50
Norfolk	6 772 28
Norfolk South	1,110 00
Plymouth	1 270 00
Suffolk	7 015 00
Worcester	2 769 00
Worcester North	875 00
	\$42,388 78
Assessments Received by Treasurer	1 715 60
Non Resident Assessments	1 405.81
Sale of Directories and History"	44 20
Income from Funds	4 409.54
Profit on Sales of Securities	3 4 61
Donation—Rudnik Charitable Foundation	10 00
Total Revenue	\$49 801.54

Expenses	
Salaries:	
Secretary	\$3 000 00
Treasurer	800 00
Assistant to President	2 500 00
	\$6 000 00
Expenses of Officers and Delegates:	
President	\$205 14
Secretary	860 36
Treasurer	287 83
District Treasurers	2,260 26
Censors	721.80
Delegates to American Medical Association	450 96
	4 886.50
General Expenses:	
Maintenance of Society Headquarters (including Clerical and Other Expenses)	\$3 397 81
Shattuck Lecture	00 00
Cotting	
Luncheons	266.20
Committee Expenses:	
State and National Legislation	\$151 10
Public Health	23 67
Medical Education and Diplomacy	70.14

Membership and Finance	12 42	
Ethics and Discipline	17 75	
Public Relations	437 33	717 41
Board of Trial Expense	116 84	
Revision of By-Laws	391 52	
Miscellaneous Expenses (Better Business Bureau, \$25 00)	31 25	5 121 08
Refunds to District Societies		5,000 00
Standing Committees		
Publications		
A. New England Journal of Medicine	\$18 500 00	
B. Annual Directory	1,864 00	20,364 00
Malpractice Defense Committee on Postgraduate Instruction	1,002 40	
Committee of Arrangements—Annual Meeting	1 000 00	
	332 43	22,698 83
Total Expenses		\$43,706 36
Unexpended Balance		\$6 095 18

APPENDIX NO 2

TREASURER'S REPORT

Mr President and The Council

The treasurer offers his report of the finances, for the twelve months of 1934. This report, however, gives only scanty suggestions of the work done by the Society, of progress made, and of greater promise for the future. This report can not fully reveal the sacrifices of many Fellows, and their valued cooperation, during the past four years of economic stress and chaos. The treasurer wishes, therefore, to acknowledge, by these written words, his admiration of as well as his debt to, the wonderful spirit shown by the Fellows who have so nobly supported our Massachusetts Medical Society.

The total revenues received in 1934 from dues of *resident* Fellows amount to \$43,604 38, the largest sum ever received from this source. Additional dues received from *non resident* Fellows amount to \$1,408 81, so that combined total dues to the Society were \$45,013.19, a sum never before equaled in our history. Other income, first, from invested funds, of \$4,409 54, secondly, from proceeds of sales, \$44.20, a gift of \$10 00 and finally, profit and loss, of \$324 61 together make \$4 788 35. The Society's total gross income, therefore, from the above sources the past year (but not including separate income of "Building Fund", nor dues from Postgraduate Medical Instruction) was \$49,801 54.

During the year the treasurer further received from dues, for Postgraduate Medical Instruction, \$3 553 12 which added to the balance in 1933 of \$2,749 77, plus the appropriation by the Society of \$1000, made total available funds to this Committee in 1934 of \$7,302 89. After expenses of Postgraduate Committee of \$3 020 62 a working credit bal-

ance remained January 1, 1935, of \$4,282 27. It would appear, therefore, that the Committee on Postgraduate Medical Instruction is well established, and should not need, for long, additional appropriation.

The "Building Fund" of the Society gratefully received a legacy from the estate of a former President of this Society, Dr George W Gay, and during the year, from investments, additional income of \$1922 58. Late in 1934, the treasurer, with approval of the Committee on Membership and Finance, sold several bonds held in the Building Fund which were selling at prices above the call price or much above their cost to the Society. The generous profits resulting, \$724 57, have been added to principal of Building Fund, which now shows a book value of \$53,770 29 (and market value of \$47,140 69).

The Society's expenses in the year include two unusual items, both of moderate amounts, first, the revision of the By-Laws, and secondly, expenses of a Board of Trial. Regarding other expense items, the treasurer believes it is wise and proper for this Council thoughtfully to compare the costs of certain items of expense with the benefits to the Society. Our expenses are increasing steadily and should therefore be both guided and guarded. The treasurer would also emphasize that appropriations by this Council to Committees should more carefully be followed.

During the past year market values of almost all of our bond securities continued to show advances, in some instances prices are well above "call prices" and therefore, in the opinion of your treasurer, demand consideration of selling. The difficulty, however, of purchases to replace such sales, and with equal or better security, gives strong reason to act carefully. The treasurer has tried to keep this in mind. Although the dreaded spectre of inflation is ominously beckoning us, the treasurer, nevertheless, again restates his conviction that the Society's funds are funds in trust, that, in the care of these funds, conservative investment principles and practices should govern. The outlook, at present, is for decreased income return from such new prime investments as are open to our cash funds. We should be satisfied, therefore, with some small income, but try to conserve our principal.

The Massachusetts Medical Society ends 1934 with unexpended revenues of \$6095 00. The total assets December 31 amount to \$166,328 87 an increase during the year of \$10,608.

The treasurer, with pleasure, again thanks the officers of the Society, and the working staff of the *New England Journal of Medicine* for their helpfulness during 1934.

The treasurer invites, and will be glad to answer, questions.

CHARLES S BUTLER, Treasurer

Treasurer's Report for the Calendar Year 1934,
In Comparison with That of 1933

DISBURSEMENTS		
Salaries		
	1932	1934
Secretary	\$3,000 00	\$3,000 00
Treasurer	500 00	500 00
Executive Assistant to President	2,500 00	2 500 00
Expenses of Officers and Delegates		
President and Vice-President.	*374 09	205 14
Secretary	743 54	860 36
Treasurer	300.25	287 88
District Treasurers	2,280 50	2,360 36
Censors	757 08	721 80
Delegates to House of Delegates		
A. M. A	732 17	450 96
Delegates to New England Medical Council		
	53 08	

General Expenses

Maintenance of Society's Headquarters	3 235.31	3 297 81
Shattuck Lecture	200 00	200 00
Cotting Luncheons.	252 15	256.20

Expenses of Committees

Of Arrangements for Annual Meeting	\$98.57	322 43
Publications		
A. New England Journal of Medicine	17 000 00	18 500 00
B. Annual Directory	1 627 74	1 864 00
Membership and Finance	16 30	12.42
Ethics and Discipline	3 20	17 75
Medical Education and Medical Diplomas	25 00	70 14
State and National Legislation	49 42	151 10
Public Health	75.55	8.27
Malpractice Defense	1 052 33	1,002.40
Public Relations	786 31	437 23
Postgraduate Medical Instruction	1 000 00	1 000 00

Special Appropriations

Contribution to Better Business Bureau	25 00	25 00
Miscellaneous	6.25	6.5
Board of Trial	—	118 84
Revision of By Laws	—	391 5
Refund to District Societies	5 000 00	5 000 00
Total Disbursements	\$42 099 90	\$43 706 36
Unexpended Balance	5 585 78	6 098 18
	\$47 685 68	\$49 804 54

REVENUES

	1933	1934
Assessments		
Paid to District Treasurers	\$40 013 00	\$42,335 78
Paid to Treasurer	1 213.00	1,212 60
Paid by Non Resident Fellows	1 350 00	1 408 81
Sales of Directories and History	81.55	44.0
Shattuck Fund.	242 75	275 01
Phillips Fund	250 00	350 00
Cotting Fund.	92.50	90 00
General Funds.	\$ 553.89	\$ 694 53
Gift.	10 00	10 00
Interest on bank balance	28 17	—
Profit and Loss	615 02	3 461
Total Income	\$47 685 68	\$49 804.54

	1933.	1933	1934
Revenues	\$47 603 52	\$47 685 68	\$49 804.54

*This includes a considerable amount for expenses in 1932 but paid in 1933

APPENDIX NO 3

REPORT OF THE COMMITTEE ON MEMBERSHIP AND FINANCE ON MEMBERSHIP

This Committee recommends

1 That the following named twenty-one Fellows be allowed to retire as of December 31, 1934 under the provisions of Chapter I Section 6 of the By Laws

- 1 Bragg, Francis Adelbert, Foxboro
- 2 Brodbeck Francis Sidney Boston.
- 3 Cobb Carolus Melville Lynn.
- 4 Curley Clarence Proctor Eau Gallie, Florida.
- 5 Davenport, Francis Henry Boston.
- 6 Edsall David Lynn Boston.
- 7 Elliot, Henry Whitney Manchester Vt.
- 8 Harris, Arthur Eugene, East Lynn.
- 9 Hemeon, Frederick Chipman, Dorchester
- 10 Jones Charles David, Malden.
- 11 Jones, John Clarke Brookline
- 12 Madden William Daniel, Boston
- 13 Masten, Charles Howard Thompson, Conn.
- 14 Page, George Thornton, Cambridge
- 15 Piper Fred Smith, Lexington.
- 16 Prescott, William Herbert, Franklin.
- 17 Rosenau Milton Joseph, Boston.

- 18 Scudder Charles Locke Boston
- 19 Sylvester Albio Warren, Pittsfield.
- 20 Tilton Josiah Odin Lexington.
- 21 Lane, Edward Binney Jamaica Plain.

2 That dues of the following named six Fellows be remitted under the provisions of Chapter 1, Section 6 of the By Laws

- 1 Borden, Charles Richardson Cobb Brookline, 1935
2. Drake, Arthur Knowlton Avon Ill, 1935
- 3 Dunscombe, William Colby Ensenada, Porto Rico 1935
- 4 Hamilton Robert DeLancey Newburyport, 1935
- 5 Wilder Edward Wheeler Madura South India, 1935
- 6 White Joseph Warren Greenville South Carolina, 1933 1934

3 That the following named twelve Fellows be allowed to resign as of December 31 1934 under the provisions of Chapter I Section 7 of the By Laws

- 1 Della Sala Ralph, Boston with remission of dues, 1932 1933 1934
- 2 Eastman Alexander Crane Sarasota, Fla., with remission of dues 1932 1933 1934.
- 3 Eckels John Clendenin Lisbon, N H
- 4 Erickson Milton Hyland Eloise Michigan.
- 5 Faxon Dora Winifred Franklin with remission of dues 1932 1933 1934
- 6 Grandmason, Albert Joseph Haverhill (On recommendation of the Committee on Ethics and Discipline)
- 7 King Frank Oscar Portland Maine.
- 8 Le Furgey William Godfrey Larchmont, N Y
- 9 Liebman Charles Montreal Que
- 10 Smith, Howard Harry Charlottetown, P E I.
- 11 Terhune William Barclay New Canaan Conn.
- 12 Powers William Joseph Holyoke with remission of dues 1932, 1933 1934

4 That the following named forty-six Fellows be deprived of the privileges of Fellowship under the provisions of Chapter I Section 8 Clauses (a) and (b) of the By Laws

- 1 Brunn, Paul Edward Westfield
- 2 Buck, William Edgar Randolph
- 3 Butler Alfred Worcester Lincoln.
- 4 Celce Frederick William Holyoke.
- 5 Cohen, Benjamin Myron Cambridge
- 6 Condrick, John Joseph, Brockton.
- 7 Cooper Alden Vernon Lynn.
- 8 Cote Gerard Salem.
- 9 Cunningham Richard Augustine, Roslindale
- 10 Dennen Ralph Waite, Waltham
- 11 Doherty Francis Joseph, Brighton.
- 12 Donnell Herbert Anthony Medford
- 13 DuVally Alice Butler Boston.
- 14 Hall George Morris, Brockton
- 15 Healy Harrison Thomas New Bedford.
- 16 Heinz, Herschel New Bedford.
- 17 Kaplan Israel, Salem
- 18 Kenny Thomas Hopper Northampton
- 19 La Belle Urgele Alexander Springfield.
- 20 Ledoux, Arthur Joseph, Fall River
- 21 Mariot Joseph Ernest, Fitchburg.
- 22 McCarthy John Coakley Malden.
- 23 McCarty Edward Michael Somerville.
- 24 McGinley Charles, Lynn
- 25 McLaughlin Joseph Henry Dorchester
- 26 McLeod Melvin Saunders Melrose
- 27 Messer Edward Crahan Dorchester
- 28 Noehren Arthur Groman Williamstown
- 29 Quirk, Thomas Christopher Watertown.
- 30 Richardson Cheslie Alvah Clarence West Somerville.

- 31. Riordan, Arthur Hatton, Springfield.
- 32. Ritter, Henry, Springfield
- 33. Rosen, Edward, Revere
- 34. Rothblatt, Harry Lewis, Boston.
- 35. Sargent, Arthur Forrest, Boston
- 36. Shea, Michael Ignatius, Chicopee Falls
- 37. Sullivan, Francis Augustus, Cambridge
- 38. Tennis, Max, Boston
- 39. Tilton, Warren Norwood, Boston.
- 40. Tucker, George Everett, Salem
- 41. Verdone, John, Medford
- 42. Walsh, Patrick Henry, Fall River
- 43. Wardwell, James Knight, Boston
- 44. Wexler, Daniel, New York City
- 45. Whitney, Raymond Cyrus, South Dartmouth.
- 46. Zacks, David, Brookline

5 That the following named four Fellows be allowed to change their membership from one District Society to another without change of legal residence, under the provisions of Chapter III, Section 3, of the By Laws

- One from Middlesex East to Suffolk
- 1. Gant Julian Carrel, Winchester

- One from Middlesex South to Suffolk
- 1 Osgood, Herman Ashton, Waban.

- Two from Norfolk to Suffolk
- 1 Guralnick, Rubin Roxbury
- 2 Newton Harlan Fay, Brookline

DAVID N BLAKELY, *Chairman*

February 6, 1935

APPENDIX NO 4

REPORT OF COMMITTEE ON MEMBERSHIP AND FINANCE,
ON FINANCE, FEBRUARY 6, 1935,
BUDGET FOR 1935

The following Appropriations are recommended

			Appropriated in 1934	
Salaries				
Secretary			\$3 000	
Treasurer	\$1 000		500	
Assistant to President	2 500	\$3 500	2 500	\$6 000
Expenses of Officers and Delegates				
President and Vice-President	500		500	
Secretary	900		925	
Treasurer	350		350	
District Treasurers	2 400		2 400	
Cen.s	800		800	
Delegates to House of Delegates American Medical Association	600		700	
		5 550		5 675
Maintenance Society Headquarters including clerical and other expenses		3,600		3,500
Shattuck Lecture		200		200
Cotting Luncheons		300		300
Standing Committees				
Arrangements for Annual Meeting	1,600		1,000	
Publications				
A. New England Journal of Medicine	19 500		18,500	
B Annual Directory of Fellows	1 500		1 700	

Membership and Finance	25		25	
Ethics and Discipline	50		50	
*Medical Education and Medical Diplomas	800		800	
†State and National Legislation	1,900		300	
Public Health	100		100	
Malpractice Defense	1,500		1 500	
		27,275		23 975

Special Committees				
Postgraduate Instruction	1,000		1,000	
Public Relations	400		400	
Revision of By-Laws, including printing of new edition			600	
Boston Better Business Bureau	25		25	
		1,425		2,025

Returns to District Societies	5,000		5,000	
Contingent Fund	2 200			
Total	\$49,050		\$46 675	
Estimated Income	\$49 000		\$46 675	

*Including expenses of delegate to annual congress at Chicago and prize offered to interns in Massachusetts.
†Including expenses of delegate to annual congress at Chicago

DAVID N BLAKELY, *Chairman*

APPENDIX NO 5

COMMITTEE ON MEDICAL EDUCATION AND
MEDICAL DIPLOMAS

DR REGINALD FITZ (Suffolk) *Mr President and Members of the Council*—The Committee on Medical Education and Medical Diplomas wishes to make a twofold report. The first part of this asks for help and guidance, the second reports progress

The Committee for some time has been debating the question of what is the wise thing for the Society to do in regard to the admission of candidates who have come from unrecognized medical colleges. The decision is a question of policy for the Society rather than anything else, because it appears to be a very simple matter for almost any applicant to get the necessary letters recommending him for membership

For several years about 10 or 15 per cent of the new members elected have been graduates from unrecognized schools. The Committee would very much like advice as to whether a larger or smaller proportion of such new members is desirable. We ask that you direct the President to appoint a special committee to study the problem of the unrecognized medical school graduates in order to determine the policy which is best for the Society to adopt in admitting such candidates to membership in our ranks

The second part of our report deals with progress. Last October the Committee on Medical Education and Medical Diplomas was "instructed to consider and to propose suitable bills for the advancement and improvement of medical licensure in Massachusetts at the coming session of the Legislature and to work with the Committee on State and National Legislation for the passing of such legislation and to enlist the coöperation of the Committee on Public Relations in the matter." We were also told at that time "that it is the sense of this meeting that The Massachusetts Medical Society believes a constructive policy desirable in our relation to the Legislature, particularly in matters of medical education and medical registration in the Commonwealth of Massachusetts"

The Committee on Medical Education and Medical Diplomas has been in close coöperation with the various committees which it was directed to contact on these matters with the Board of Registration in Medicine with the deans or assistant deans of the various Massachusetts medical schools and with the Editor of the *Journal* and after several meetings decided that the bill to be submitted to this Legislature should essentially read as follows:

"Each applicant who shall furnish the board with satisfactory proof that he is twenty-one or over and of good moral character that he possesses the educational qualifications required for graduation from a public high school, that he has attended courses of instruction for four years of not less than thirty-two school weeks in each year or courses which in the opinion of the board are equivalent thereto in one or more legally chartered medical schools approved by the board and that he has received the degree of doctor of medicine or its equivalent, from a legally chartered medical school having the power to confer degrees in medicine and approved by the board shall upon payment of twenty-five dollars be examined and if found qualified by the board be registered as a qualified physician and entitled to a certificate in testimony thereof, signed by the chairman and secretary."

This bill has been introduced at the State House by the Massachusetts Medical Society. If it is passed by the Legislature it will give the Board of Registration in Medicine the power of approval of medical schools, and will do away with undesirable applicants coming to Massachusetts with a diploma, having the right to be examined regardless of their preliminary medical education and often eventually receiving license to practice. We believe this bill to be a reasonable and progressive one and that it will help signal the advancement and improvement of medical licensure in Massachusetts.

This bill will be first heard at the State House by the Committee on Education about the 1st of March. The Committee on Public Relations hopes that at this particular hearing there will be present a large representation of the Massachusetts Medical Society. If the bill is passed by the Committee on Education a great deal of work must be done by every member of the Massachusetts Medical Society all through the Commonwealth before it can be passed by the Legislature. If there is inertia on the part of the Society the bill will be thrown out of the window on the other hand if there is active coöperation by the Society much power can be built up. The success or failure of the bill therefore henceforward depends in great measure upon how sincere the Society is in backing the effort that was initiated by the Council last October.

APPENDIX NO. 6

REPORT OF THE COMMITTEE ON PUBLIC RELATIONS To the President and Members of the Council of the Massachusetts Medical Society

The Committee on Public Relations begs leave to submit the following report of progress:

On July 11, 1934, the Committee on Public Relations met and listened to a paper read by Dr. Walter P. Bowers which reviewed some of the outstanding problems confronting the medical profession of the present time. After a full discussion of Dr. Bowers' paper the Committee voted to study the adequacy of medical service in Massachusetts. A

subcommittee consisting of Doctors Hunt, Lane, Mongan, Tighe and Bagnall was appointed to form plans for making such a study. On July 21, 1934, *The New England Journal of Medicine* at the suggestion of the Public Relations Committee, urged district societies to appoint their Public Relations Committees.

The Public Relations Committees of the District Societies are to act as a liaison committee with the State Committee on Public Relations.

August 20, 1934. At the request of the Administrator of the ERA a conference was arranged between a representative of the ERA and a subcommittee from the Public Relations Committee. This conference was called for the purpose of considering white-collar projects. The conference failed because authorities in Washington decided not to carry out the conference.

October 1, 1934. A meeting of the full committee was held on this date. The subcommittee on the study of the adequacy of medical service in Massachusetts reported that such a study should be made. This report was accepted and the recommendation adopted. It was voted also to instruct the subcommittee to prepare a questionnaire on this subject. It was also voted to enlarge the scope of the investigation so as to include the study of the abuse of medical charities.

December 17, 1934. President Robey sent to the secretaries of the District Societies a letter enclosing copies of the suggestions to the Public Relations Committees of District Societies which suggestions were to be used in carrying on the work of collecting data through a questionnaire which was mailed to the secretaries. There was also sent to each member of the Massachusetts Medical Society a questionnaire. This questionnaire contains requests which every member of the Society should grant. When all the questionnaires are returned to the Public Relations Committee sufficient data of a valuable nature will have been collected and this data will show how well equipped the medical profession of Massachusetts is to furnish adequate medical service under modern conditions. The Committee on Public Relations most earnestly urges every member of the Society to fill out and return this questionnaire.

January 23, 1935. It was voted to recommend to the Council that the Massachusetts Medical Society employ trained personnel to study the adequacy of medical care in selected areas. It was also voted to recommend that the Council appropriate \$1,000 for this purpose. In accordance with the vote of the Council at the October meeting of 1934 a subcommittee of the Public Relations Committee met with the Committee on Medical Education and Diplomas for the purpose of discussing an amendment to the Medical Practice Act, designed to limit registration to graduates of medical schools approved by the State Board of Registration in Medicine.

The proposed amendment has been introduced by petition of the Massachusetts Medical Society and is now before the Legislature as House Bill 756.

Reorganization. Previous to July 1934 the bulk of the work of the Public Relations Committee was done by a subcommittee. This subcommittee had conferences with the Commissioner of the State Department of Public Health and with the Public Health Council of the State. We feel that these meetings were influential in bringing about a better understanding on the part of the State Department of Public Health and the Massachusetts Med-

ical Society. It was also agreed that the State Department of Public Health would not launch forth on any new activity which might affect the practice of medicine in Massachusetts without conferring with the Public Relations Committee of the Massachusetts Medical Society before such action was taken.

Conferences were held by the subcommittee with the Chairman of the Industrial Accident Board. Conferences were also held with representatives of insurance companies carrying workmen's compensation insurance. We feel that these conferences promoted goodwill and cooperation on the part of the Industrial Accident Board, the insurance carriers and the Massachusetts Medical Society.

But the problems which confront the medical profession are varied and intricate. We feel that every member of our Committee should have work to do. We have, therefore, decided to form five subcommittees which will care for special problems:

1. A subcommittee on adequacy of medical care
2. A subcommittee on insurance, particularly social insurance
3. A subcommittee—Public Health Department and practitioners relations and public information
4. A subcommittee on hospital relations
5. A subcommittee on medical education and licensure

In carrying out the scheme of the reorganization, it was voted to elect from the Committee a Vice-Chairman, who would assist the Chairman, the President of the Society, in the work of the Public Relations Committee. Dr. Charles E. Mongan was elected as Vice-Chairman. Dr. Bagnall was elected Secretary. The Committee voted to contribute its support and assistance to Senator Miles on his lien bill, Senate 52.

The Vice-Chairman wishes to call attention to the Council of the faithful work of committee men. He also wishes to commend the earnestness and devotion to the work on the committee by members who scarcely miss a meeting, coming one hundred miles and over from their own home towns to take part in the meetings held in Boston.

APPENDIX NO. 7

REPORT OF THE COMMITTEE ON STATE AND NATIONAL LEGISLATION

Minutes of the Meeting of the Committee on State and National Legislation, Thursday, January 31, 1935, at 4:30 P.M.

Drs. Robey, Begg, Jones, Marsh and Warren present.

The various bills of medical interest thus far introduced were presented by Dr. Begg and discussed

The results of hearings on the bills already presented were discussed.

The excellent response to the hearing of Dr. Miles' bill, Senate 52, was emphasized.

Voted to strongly oppose House Bill 1400, providing for the establishment and administration of a system of health insurance.

Voted to oppose House Bills 528, 623 and 755 relative to regulation of the practice of surgery and opposing vaccination.

Voted to favor House Bill 60 requiring vaccination of children in private schools.

House 756, relative to the qualifications of applicants for registration as physicians, was strongly supported.

Voted that the plan of the Norfolk District Medical Society be followed, to familiarize Fellows of the Society with their Representatives and Senators in the General Court and to inform them on important bills to be considered.

Voted to request the Council to authorize expenditure of a sum not to exceed \$350 to carry out this plan.

Respectfully submitted,
SHIELDS WARREN, *Secretary*

APPENDIX NO. 8

REPORT OF THE COMMITTEE ON POSTGRADUATE INSTRUCTION

February 6, 1935

Mr. President and Members of the Council

The Committee on Postgraduate Instruction wishes to report that the program of the extension courses for 1934 and 1935 is well underway. So far one hundred and twenty-five sessions have been held. Each district is fully organized and one hundred and five sessions are yet to be given.

At the present time the Committee is considering plans for improvement of this work for the coming year and hopes to have next year's program ready by the time of the Annual Meeting in June.

Respectfully submitted,
FRANK R. OBER, *Chairman*
LEROY E. PARKINS, *Secretary*

IMPORTANT NOTICE

By reason of a decision of the Officers of the Society, it has been necessary for the *Journal* to make certain changes in the makeup of this issue. This explains the late delivery of the *Journal*.

GEORGE H. BIGELOW, M.D.

In the passing of Dr. George H. Bigelow, who for eight busy years directed the destinies of the public health program in Massachusetts, the public health movement has lost a distinguished leader whose vision and enthusiasm blazed trails in the fields of social betterment, the state has lost a distinguished public spirited citizen who brought honor to his community, and we his former associates in the Department of Public Health have lost as true and dear a friend as was ever granted to any man.

Coming to the post of state health commissioner under circumstances that might have frightened a man of less vitality and courage, Dr. Bigelow rapidly assumed a position of unquestioned leadership in his chosen work. There is no branch of public health to-day upon which he has not left his indelible imprint. To those fields of health protection that

had been developed through years of experience he carried a breadth of vision that added new life and purpose. Thus he brought to the problems of water supply and waste disposal a determination that nothing should stand in the way of achieving the highest standards of excellence. He was uncompromising in his insistence that the public water supply should be of unquestioned purity, and intolerant of those who, for one reason or another, were willing to jeopardize so essential a factor in our present-day civilization. Largely as a result of his activities, plans were consummated (in 1926) for the largest water supply improvement in the history of the State—the extension of the Metropolitan supply to the Ware and Swift Rivers.

Equally firm was his insistence upon the highest standards of purity for the public food supplies.

That shellfish if obtained from improper sources, might be dangerous for human consumption he well recognized. That in his successful fight for protection of this type of food he should make many enemies he also recognized, and none regretted it more than did he. Yet he carried through with this work, in the face of seemingly insurmountable obstacles seeing only as his goal the protection and safety of the consuming public.

His crusade for clean and safe milk for Massachusetts will always be remembered among his friends and foes alike. Ever impatient with intertests that place commercial gain above human welfare he was outspoken in his criticism of those supplies that were unsafe for human consumption. That as health commissioner he should have the responsibility for the conduct of a hospital where were treated many children crippled by tuberculosis obtained through milk rankled in Dr Bigelow's heart when he saw on all sides of him so many opportunities for further infection of other children. Thus he championed the program for the elimination of tuberculosis of cattle even though he realized full well at the time that such was a far from popular cause. That his stand on this issue provoked hostile criticism served but to strengthen his determination that human life and its protection far transcended petty political and commercial interests. In this field at least he lived to see his victory with the virtual elimination of bovine tuberculosis from Massachusetts and already a substantial decline in resulting human infections. He also lived to see the day when through more extensive pasteurization, which he militantly championed, milk borne disease had all but disappeared from the State.

In the field of tuberculosis he was always striving to bring about a far greater utilization of existing knowledge and facilities to the end that cases of the disease might be recognized earlier and thus afforded the benefit of modern care. He helped to organize and for eight years directed the development of the Chadwick Clinics so that there has evolved to-day a sound and well-developed program for the detection of childhood tuberculosis a program that reaches out into all corners of the state and available to all persons regardless of their station in life. In other fields of disease prevention in the control of typhoid fever the elimination of diphtheria through the furtherance of immunization Dr Bigelow gave unsparingly of his time and energy.

It was not solely however in his brilliant excursions along the accepted paths of public health endeavor that Dr Bigelow achieved his many triumphs, but also in the blazing of trails in still uncharted fields of disease prevention and health promotion. When he assumed the post as health commissioner he found himself faced with a new type of public endeavor a program of cancer control. There were no precedents to be followed no one had explored the pitfalls to be avoided none knew how best to chart the course in this new field. Under his guidance, and molded by his brilliance and breadth of vision there evolved a program that has been studied by visitors from all parts of the world the first state public health program for cancer control. That this program should be still in its early infancy is inevitable from the nature of the problem and yet in the few years of his guidance there was established a firm foundation on which may be built the structure that will evolve in future years.

It was this challenge of cancer that focused his interests on the tremendous economic and sociological problems presented by other chronic diseases. He was troubled at the thought that with the rapidly expanding scientific knowledge of care and prevention of disease there should be such a lag in the application of this knowledge to human needs. A

firm disbeliever in state medicine he envisioned, however a far broader program through which the hospitals, the medical centers and the official governmental agencies might cooperate in rendering through the family physician many essential diagnostic and therapeutic aids that to-day because of cost or inaccessibility are denied to many who are most in need thereof. As to so many others who have pioneered in the field of social betterment, it was not granted to him to see the accomplishment of his dreams. That many of them will one day be achieved for the permanent betterment of human life will in the future serve as monuments to the genius of the mind that dreamed such visions.

The prominence that Dr Bigelow's achievement in Massachusetts brought unto him served but to add to his shoulders the burden of many public health activities outside of the State. His interest in cancer found wider expression through the medium of the American Society for the Control of Cancer to which, in his capacity as president, he gave unsparingly of his time. The White House Conference in 1930 found him laboring with committee reports. To the Committee on the Costs of Medical Care he gave unstintingly of his energy ever seeking toward that distant goal of providing modern scientific medical care for those to whom it is to-day so often denied. When in 1933 Dr Bigelow relinquished his post as state health commissioner to assume the duties as director of the Massachusetts General Hospital he saw before him only the challenge of a broader field of usefulness through the development of a hospital into a true medical and health center for the community.

It would serve no special purpose to enumerate further the vast number of fields of endeavor upon which Dr Bigelow left his imprint. To attempt to do so would be akin to calling the roll of public health work for there was no factor no matter how large or how small that could affect the health of the people that escaped his attention. Long after his ideals shall have been achieved and the influences that he sought to combat shall have vanished into oblivion his constructive work will live as a tribute to his public devotion.

Far transcending the material accomplishments of his too short life, there will be left upon his associates the influence of Dr Bigelow's personality. Those of us whose privilege it was to be intimately associated with him to work shoulder to shoulder with him to share with him in his plans, his dreams and his visions knew him in a way that was not granted to those whose contacts were more casual. We knew him as a friend whose pleasure it was to help others. No man could ever have had a truer friend than did those of us privileged to work with him. As a leader he inspired those around him through the example that he himself set by the brilliance of his mind and his unselfish sacrifice to his work. He constantly denied himself the personal pleasures and relaxation that might have meant so much to him simply because he found on all sides of him problems that demanded of his time. No problem was ever too small or too large to merit his attention no request too insignificant. In his devotion to his work he gave of his seemingly boundless energy never complaining of his tasks but ever impatient when confronted with opposition based on selfish interests and insincerity.

The Department of Public Health takes this occasion to salute the memory of George Bigelow an inspiring leader in the field of public health a friend whose memory will ever be cherished in the treasure-house of remembrance a public servant who at the sacrifice of himself strove ever upward toward the goal of the betterment and enrichment of human life. The world is far better and richer that he has lived therein.

CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL PATHOLOGIC EXERCISES

EDITED BY RICHARD C CABOT, M D

CASE 21141

PRESENTATION OF CASE

First Admission A twenty-four year old American druggist entered complaining of a run-down condition and fever

Because of a heart lesion discovered in a routine examination at high school seven years before entry he was told not to overexert himself. He eliminated strenuous sports from his routine because he became very tired. Otherwise he had no symptoms and felt very well until two months before entry. At that time he was preparing for his marriage, which took place about six weeks before entry, and apparently overexerted himself. During the month before admission he lost weight and lost his usual energy and strength but had no specific pain or complaint. He returned to work, however, but soon noticed shortness of breath. A physician examined him and told him that he had fever and should be in bed.

His family and marital histories are non-contributory.

There was no history of rheumatic fever or any serious illness.

Physical examination showed a rather thin, fairly well-developed, sick looking man propped up in bed. The skin and mucous membranes were pale. The sclerae were slightly yellowish. The heart was enlarged to the left, the apex being in the fifth interspace 10.5 centimeters to the left of the midsternal line. The sounds were loud and of good quality. There was a systolic thrill over the apex but none over the base. The rhythm was regular except for an occasional premature beat. A loud systolic and a blowing diastolic murmur were heard at the base, and a loud, harsh systolic and an early diastolic were heard at the apex. The diastolic murmur at the base was transmitted to the left of the sternum and was most intense just above the mitral area. There was no distention of the neck veins although there was a vigorous systolic pulsation in the neck. The blood pressure was 166/30. There were no petechiae. The lungs were negative except for a few crackling râles at the right base, and there was a sense of resistance in the right upper quadrant. The liver edge was not felt. The spleen was not felt but was believed to be enlarged by percussion.

The temperature was 101°, the pulse 100. The respirations were 23.

Examination of the urine showed a specific gravity of 1.018 to 1.022 and a slight trace of albumin. The sediment contained 3 to 4 white blood cells, 5 to 6 red blood cells and a rare cellular cast. The red blood cell count was 3,860,000, with a hemoglobin of 60 per cent. The white cell count was 11,000, 83 per cent polymorphonuclears. The stools were negative. Three blood cultures showed streptococcus viridans.

He was discharged one week after admission. *Second Admission*, three weeks later.

During the interval he regained some strength and felt slightly more comfortable.

Physical examination was similar to that of his previous entry. No petechiae were seen. The spleen was not felt. The blood pressure was 140/50.

The temperature was 103.2°, the pulse 125. The respirations were 25.

Examination of the urine gave a specific gravity of 1.002 to 1.016 and a slight trace of albumin. The sediment contained 15 to 25 white blood cells and 25 to 200 red blood cells and also a few hyaline, granular and cellular casts. The blood showed a red cell count of 4,090,000, with a hemoglobin of 70 per cent. The white cell count ranged from 10,000 to 40,000, with about 80 per cent polymorphonuclears. A blood culture showed streptococcus viridans.

He ran a very septic chart, the temperature ranged between 104° and 101°. He developed some edema of the sacrum and legs. About one month after entry a tender, slightly reddened spot, about two centimeters in diameter, appeared on the surface of the right heel. He failed very rapidly and died during the fifth week.

DIFFERENTIAL DIAGNOSIS

DR T D JONES I think it is rather evident from even a cursory examination of this record that one must consider bacterial endocarditis primarily and that it rather thrusts itself upon you. However the evident nature of the story makes one a little skeptical as to whether or not that is the whole story. Certainly this patient had some heart lesion seven years prior to his first difficulties. He had no rheumatic history, but from his story we know that he had perfectly definite evidence of valvular heart disease. The absence of any definite early history of a congenital lesion and the finding of lesions that are perfectly consistent with the rheumatic type of heart disease, make one think that he had rheumatic heart disease despite the absence of rheumatic history. I think that when one reaches the age of twenty or thirty years without serious illnesses in childhood or adolescence of the rheumatic type it is extremely common.

for the individual to forget minor illnesses or complaints which might have resulted in the development of heart disease of the rheumatic type. We must consider that he did have the rheumatic type of heart disease and had had it for some years.

Rheumatic heart disease is very unlikely in view of his age, especially since evidence of heart trouble was noted at the age of seventeen, nor does his family history suggest this.

On physical examination he was evidently an ill man with a low grade temperature and a moderately severe secondary anemia. The spleen was not palpable, but someone thought he could percuss it. Personally I have considerable doubt that they were able to do that. Evidently there was no clubbing of the fingers and no petechiae, but he did have a temperature. He had obvious valvular disease, predominantly aortic in type with aortic regurgitation and peripheral evidence of increase in pulse pressure. Normal rhythm with symptoms referable to the heart in the adult rheumatic is a little unusual for straight rheumatic fever. In fact rheumatic fever of more than two months' duration without more typical evidence of rheumatic infection would be a little unusual. In addition to that his white count was not very high. In a sick rheumatic, one usually has a higher white count than 11,000. The three positive blood cultures of course, point very definitely toward the insidious development of subacute bacterial endocarditis, though he had not developed as yet the full picture with a palpable spleen, clubbing of the fingers, embolic phenomena or petechiae. He did have red cells in the urine which is of course common in subacute bacterial endocarditis, not necessarily due to infarcts but due to easily disrupted blood vessels, which, of course, is a common part of the bacterial endocarditis picture. I have no doubt that at the time he was discharged the clinical diagnosis was subacute bacterial endocarditis with the expectation that he would probably run a course of some months. I think that his four months' story, two months up to the time of his first admission—his admission lasted only a week—and two months subsequently, up to death, show that there must have been some other factor in the last two months. In fact in the three weeks at home he had improved slightly.

At the time of the second admission he was running a very much more definite temperature. He was a sicker man. He had much more evidence of renal change and he may have shown at autopsy some of the findings which Libman and Baehr have described in bacterial endocarditis. The total duration is short for subacute bacterial endocarditis. He did at the end have definite embolic phenomena in the area described in the heel. He did not have a palpable spleen at that time or clubbing of the fingers. He con-

tinued to have anemia. There was a rather sudden change in the clinical picture between his two admissions. The blood count at the end was very high. He was an extremely toxic individual without typical heart failure, but with some evidence that the heart was failing. I believe that there must have been some additional factor to the ordinary subacute bacterial endocarditis and since a common one, pneumonia, was not mentioned I think it likely that this man had engrafted on his previous subacute bacterial lesion, a terminal infection which probably made him run a terminal course comparable to the acute bacterial endocarditis group. It is fairly common in subacute bacterial endocarditis to find in addition to the granular masses of bacteria that fringe the valve surface, organisms of a different type at the periphery of the thrombotic material. I suppose the commonest organism found is the pneumococcus and one sometimes sees them in the blood vessels and in the valve tissues, showing that there was a rather definite additional bacterial process. I should think that the diagnosis here was subacute bacterial endocarditis engrafted on previous rheumatic disease involving especially the aortic valve, and at the end it is possible that the process was speeded up by a terminal infection which may have been more in the nature of an acute terminal bacterial endocarditis.

CLINICAL DISCUSSION

DR. ARLE V. BOCK: There were several interesting features about the patient. The diagnosis of subacute bacterial endocarditis was made on the first examination. It is very interesting to me that three successive blood cultures showed positive cultures in all flasks. This was rather unusual considering the difficulty we so often have in getting positive cultures in subacute bacterial cases. We advised against any attempt at therapy except general supportive measures. We thought transfusions would accomplish nothing but, possibly, grief and prolongation of the course but nothing more. The patient was taken to New York where Dr. Libman was consulted and what interested me was that he advised transfusion, which was done, and probably did help to support him a little. After his return he developed a phenomenon unfamiliar to me in subacute bacterial endocarditis. He had at least three attacks of paroxysmal tachycardia, the only evidence of abnormal rhythm except for premature beats.

In the last two weeks he had every evidence of congestive failure which does occur in subacute bacterial endocarditis but most of these cases go to their death without that picture. He was so ill the last week or so that we paid very little attention to what was going on in the chest.

DR. PAUL D. WHITE: I have little to add except to emphasize two or three points of importance. I would question more than Dr. Jones

did the duration of the illness before the patient entered the hospital. Although it is impossible to tell how long he had been sick, it is almost certain that his illness dated back more than two months. I do not think it is necessary, therefore, to presuppose a secondary complication of acute bacterial endocarditis in addition to the cardiac involvement that goes with subacute bacterial endocarditis. In other words, he quite likely died a toxic death from the infection itself which may have been going on at least six months rather than four. It is also a common story that at one time he regained some strength and felt more comfortable. Dr. Bock has suggested that the transfusion may have had something to do with that, but it is true in a good many other instances that for a few days or weeks at a time, without particular therapy, the temperature will drop or the patient feel a good deal better with or without a drop in temperature, a good deal of hope is raised among members of the family but not among the physicians during this interval. As time went on in this case there was more evidence of renal involvement, probably a definite nephritis, in addition to simple bleeding which comes either from hemorrhagic tendency in these cases or from renal infarction. It is also of interest that this patient showed aortic regurgitation and probably mitral deformity without any marked stenosis of either valve so far as physical examination showed. Such valvular involvement is typically found in subacute bacterial endocarditis.

Finally, it is unusual for a patient with subacute bacterial endocarditis to show all the so-called classical signs, and in this case we have several of the clinical signs lacking, such as clubbing of the fingers. His paroxysmal tachycardia, which was found on November 15 by electrocardiogram, showed a rate of $200 \pm$, apparently originating in the auricles, that particular complication of subacute bacterial endocarditis is infrequent, at least in my experience.

CLINICAL DIAGNOSES

Rheumatic heart disease
Mitral stenosis and regurgitation
Aortic regurgitation, ? stenosis
Subacute bacterial endocarditis

DR. T. DUCKETT JONES' DIAGNOSES

Subacute bacterial endocarditis of the aortic valve
? Superimposed acute endocarditis
Rheumatic heart disease, healed aortic and mitral valves

ANATOMIC DIAGNOSES

Subacute bacterial endocarditis (streptococcus viridans) of the mitral and aortic valves, the left auricular and left ventricular endocardium

Hypertrophy and dilatation of the heart.
Hydropericardium
Infarcts of the spleen, kidneys and heart
Pulmonary atelectasis

PATHOLOGIC DISCUSSION

DR. TRACY B. MALLORY: The autopsy on this man showed a typical subacute bacterial endocarditis with vegetations present on the aortic valve, mitral valve and the left auricular wall. Besides the acute friable vegetations of the bacterial endocarditis it was possible, as is usual in these cases, to find some evidence of more chronic valvular deformity, in this case only on the mitral, where the chordae tendineae were markedly shortened and thickened and the valve margins showed some old fibrous thickening, which, I think, can be separated with reasonable certainty from the terminal acute process. An additional finding which is not rare but is rather unusual was a small infarct of the heart, almost undoubtedly the result of an embolus from one of the vegetations passing down the coronary artery. This was located in the interventricular septum close to the base and might well be expected to produce a cardiac arrhythmia but I should not think a paroxysmal tachycardia.

DR. WHITE: How old was that?

DR. MALLORY: A number of days old at least. It was not purely a terminal affair. The other findings of interest in the body were some well-marked infarcts of the spleen, at the upper pole, which had produced marked adhesions to the diaphragm. I think it is a little surprising that there is no episode in the history to correlate with this. The kidneys were normal in size but when the capsules were stripped the surfaces were covered with bright red petechial hemorrhages, the so-called "flea bitten kidney" that is rather typical of a bacterial endocarditis. There also were a couple of gross infarcts, as is usual. Microscopically the glomeruli showed marked involvement at least part of which is recognizable as an embolic process, although there are also glomerular changes which do not particularly suggest embolism. Further discussion of the significance of the kidney findings can best be postponed until the second case has been taken up.

CASE 21142

PRESENTATION OF CASE

First Admission A fifty year old American elevator operator entered complaining of sharp pains in his left chest.

While at work on the day before entry he suddenly developed a chill followed by fever and severe pain in his left chest. The pain was more severe upon breathing, and that evening it was so severe that it kept him awake. It was associated with a non-productive cough. He had

lost thirteen pounds during the past three months

The family history is non-contributory

He had been seen two years before in the Out Patient Department because of attacks of rheumatism which had started with soreness and stiffness in the left hip joint, followed by stiffness in the left knee, ankle and right wrist, lasting two weeks. However, all of these symptoms had cleared up before he visited the Out Patient Department. A systolic murmur was heard at the apex. A Hinton test was negative. There was no history of venereal infection. Fourteen years before entry he had an attack of rheumatism, similar to the one described above which lasted for a week.

Physical examination showed a well-developed and nourished man lying in bed in slight respiratory distress. There was a suggestion of slight clubbing of the fingernails. The left lower lobe of the lung was dull with diminished breath and voice sounds and a few râles. A friction rub was heard in the left axilla. The heart was slightly enlarged to the left. The sounds were regular. A_1 was slapping. A rough systolic and a soft middiastolic murmur were heard at the apex. There were no thrills. P was accentuated. The blood pressure was 120/60.

The temperature was 103.5° , the pulse 100. The respirations were 25.

Examination of the urine showed a specific gravity of 1.012 to 1.024 with a very slight trace of albumin. The sediment showed a few cellular and hyaline casts. The blood showed a red cell count of 4,190,000 with a hemoglobin of 65 per cent. The white cell count was 18,100. 57 per cent polymorphonuclears. The sputum showed pneumococci, not types I, II or III. Repeated Hinton tests were positive, a Wassermann test was negative.

X-ray examination of the chest showed a slightly elevated left diaphragm and a rounded shadow of density in the left midaxillary line.

His temperature went down gradually by lysis and he was discharged two weeks after admission.

Second Admission, nine months later

Because of the positive serology he was followed in the Out-Patient Department, where a lumbar puncture was done about one month after discharge. The dynamics were normal. Six lymphocytes were found. The gold sol was 1:12221000. The Wassermann test was negative.

He felt perfectly well until four months before this entry when he noticed swelling of his ankles toward the end of the day. Two months before entry he also noticed red areas over both ankles and legs, not associated with irritation or itching and which disappeared at times. He had no dyspnea. During this period

he worked steadily as an elevator operator from 7 00 a. m. to 3 00 p. m.

On the day before admission while walking home from work he experienced sudden twinges of pain in the right chest around the nipple. The pain was at first slight but rapidly increased in severity until he was scarcely able to breathe. The pain soon radiated to the right shoulder. During that night he sweat a great deal, was markedly orthopneic and was forced to sit in a chair. He had no cough or sputum. He entered the Emergency Ward the following morning complaining of chest pain and dyspnea.

Physical examination showed a well-developed and well-nourished man, very dyspneic, moderately cyanotic and complaining of lower right chest pain. Over both legs there were many pinpoint and slightly larger hemorrhagic areas which did not fade upon pressure. The ankles and lower legs were edematous. The right pupil was irregular, both pupils reacted to light. There were no pulsations in the neck. Just below the right scapula posteriorly there was an area of dullness with absent breath sounds and tactile fremitus. Just above this area there were fine râles and increased spoken voice. The heart was enlarged, the left border of dullness being 11 centimeters from the midsternal line. The rhythm was regular except for an occasional extrasystole. There was a presystolic apical rumble and a soft systolic murmur with a loud sharp first sound. No murmurs were heard at the base. P_2 was accentuated. The blood pressure was 145/80. There was slight tenderness in the right upper quadrant.

DIFFERENTIAL DIAGNOSIS

DR. PAUL D. WHITE. The history on the first admission is evidently that of an acute pleurisy.

"He had lost thirteen pounds during the past three months." That is thrown into the history of the acute illness but is probably of much more significance than is indicated by the brief space given it. It indicates that he had been sick much longer than this acute illness of the pleurisy would make one believe. One does not lose thirteen pounds without some cause and that cause except for dieting is illness.

"Fourteen years before entry he had an attack of rheumatism which lasted for a week." In other words we have a history of arthritis at the age of thirty-six, it recurred at the age of forty-eight. With the second attack there was a mitral or apical systolic murmur which should make us suspicious of the possibility of rheumatic valvular disease in view of the rheumatic history.

"There was a suggestion of slight clubbing of the fingernails." That should be underlined in this history, as it develops later.

"The left lower lobe of the lung was dull

with diminished breathing and voice sounds and a few râles." There is some lesion in the lower lobe of the left lung which may or may not be an infarct

"A rough systolic murmur and a soft mid-diastolic murmur were heard at the apex." Again there is the suggestion of mitral valve disease but it is to be remembered that dilatation of the heart may give rise to apical murmurs

"The temperature chart could be explained on the basis of an acute respiratory infection or of other infectious illness

"Repeated Hinton tests were positive, a Wassermann test was negative." Previously, in his visit to the Out-Patient Department his Hinton reaction had been negative

At the time of this admission he was showing slight anemia, hemoglobin 65 per cent and a rather low red count, not to be attributed to the acute illness. The leucocytosis can be attributed to the acute illness. He has the urinary findings that are consistent with an acute febrile illness

The x-ray examination of the thorax is consistent with the history and physical findings

The lumbar puncture shows no evidence of central nervous system lues

The story then goes on to the recurrence or appearance of a new symptom four months before he entered the hospital the second time and five months after he left the first time. We do not know how well he was in that first stretch of five months, but he was working and not apparently seriously ill

"He had no dyspnea." However, the edema of the ankles and lungs certainly indicates congestive failure even though there is no statement of the presence of dyspnea. Then he apparently had a repetition of the acute pulmonary involvement of nine months before but on the other side, the right instead of the left

"There were no pulsations in the neck." We would be interested to know whether the veins were prominent. Sometimes they are prominent without much pulsation

"The heart was enlarged, the left border of dullness being 11 centimeters from the mid-sternal line." We have no measurements before, so that we do not know how much larger the heart is now than two years previously. He has a big heart, then, with mitral murmurs and some congestive failure, probably involving the liver as well as the lower extremities

His urinary findings are not wholly inconsistent with fever and congestive failure but seem to be somewhat more exaggerated than we would expect with such a slight amount of congestive failure and febrile reaction

The anemia is increased in degree.

"The heart was triangular in shape with a straight left border and some prominence in the

region of the pulmonary conus." I judge that this is the so-called mitral shape

X-RAY INTERPRETATION

DR AUBREY O HAMPTON The first film on the first admission shows this area of consolidation in the left lung and a large heart which is at that time fairly triangular in shape. This is an inspiration film and the diaphragm is down but if it were where it usually is at quiet breathing it would look more triangular. The aortic shadow is rather long for a typical rheumatic heart with only one valve lesion

The next examination is with a portable apparatus and shows the dullness described at the base, probably fluid and consolidation. This is probably consolidation, and this fluid. There again the left border of the heart is straight and the pulmonary conus prominent

DIFFERENTIAL DIAGNOSIS CONTINUED

DR WHITE At this time I would think certainly that the dependent edema is the result of congestive failure and correspondingly that we cannot ascribe all the dyspnea to the acute process in the lungs

It would seem that the improvement that ensued might have been due in part to the subsidence of the pulmonary lesion, but the large amount of digitalis given suggests that that might also have had some influence. The ordinary dose of four and a half grains a day was extended to six grains a day for two weeks. This is a large amount. I do not know whether in this history we are dealing with a somewhat weak preparation—we have had such experience—or whether the patient was unusually resistant to digitalis or did not absorb it very well. We cannot tell from this record

"The legs from the groin down were covered with numerous petechiae and there was considerable redness of the intervening skin." He seems to have been an unusually "good soldier" to have kept on working all this time in spite of evident illness

We would like a more complete description of that diastolic murmur. We may assume that the heart showed much the same findings as before, systolic and diastolic murmurs at the apex of mitral origin. Now and then we hear aortic valve murmurs at the apex but of course in such cases the aortic diastolic murmur should be heard also at the base or along the left sternal border and louder there than at the apex

"The spleen was just palpable." That is the first mention of the spleen. There is some splenomegaly then in addition to the enlargement of the liver, but not necessarily to be ascribed to the same cause

"The fingers were slightly clubbed." Again a mention of clubbing of the fingers. This is doubtless important

"The temperature was 98°." He had no

fever this time, at the time of this one record I would like to know whether it was an afebrile course during the next few days.

There is evidence of renal insufficiency and a suggestion that uremia has begun.

The convulsion raises the question of cerebral infarction, although uremia may produce these same symptoms.

Conclusions In the first place it appears to me that we have as a foundation rheumatic heart disease with mitral involvement. Other causes of cardiac enlargement and murmurs are much less likely in view of the development of this case and of the man's history. We know that this type of heart is a frequent site for subacute bacterial endocarditis. We have at the end of the history nephritis and a terminal uremia complicating congestive heart failure with a further complication of pulmonary infarction, whether embolic or thrombotic we can not say. These diagnoses would best fit this history.

In the differential diagnosis a subacute rheumatic infection is to be considered but there has been very little arthritis and the high degree of renal involvement is evidence against such a diagnosis. Pulmonary infarction with dilated heart secondary to that seems unlikely. The pulmonary lesions are only incidental. The question of syphilis is raised by the positive Hinton reaction. That is the only evidence we have for such a diagnosis. We do know that syphilitic aortitis may be present complicated by other conditions, even subacute bacterial endocarditis, but I do not think we have enough evidence to make a diagnosis of cardiovascular syphilis in this case. It would be much harder to rule out syphilis if there were aortic regurgitation but we have no clear evidence of aortic valve lesions, so we may consider either that syphilis is coincidental or that we have misleading Hinton reactions, which we all know may be present in subacute bacterial endocarditis. The question is whether there was a terminal meningitis we have no proof of that. Uremia probably accounts for the final story.

CLINICAL DISCUSSION

DR. GERALD BLAKE I saw this patient in the beginning of his second admission when he was the picture of congestive failure with a good deal of distress in breathing. In addition to the congestive failure he was running a temperature at that time that subsided in three or four days. He had some evidence of fluid in the right lower chest and his pain was excessive for congestive failure alone, so that at first we considered the possibility of coronary thrombosis. The possibility of subacute bacterial endocarditis did not occur to us at that time. We believed he had congestive failure, a rheumatic

heart with involvement of the mitral valve, and that he probably had some infectious process in the lung to account for the degree of pain he was having. He also had an extremely tender liver. I believe he had in addition at that time a considerable degree of glomerulonephritis.

DR. NEIL L. CRONE I saw this man at his first entry and admitted him through the emergency ward. At that time with a story of chills, sudden pain in the chest, fever and signs at the left base including a friction rub, I admitted him with the diagnosis of pneumonia and he was treated and discharged as such from the service. He produced no sputum at first and, as I remember, his sputum was never "prune juice" or bloody at all though when it was obtained it contained large numbers of pneumococci. There were two things that discouraged us a bit, the presence of clubbing of the fingers and the course of the disease. The next time I saw him was on his third admission, at which time his fingers seemed to me to be much more clubbed than at the first admission. There had been a striking change in his fingers.

DR. TRACY B. MALLOY I would like to ask Dr. White if the appearance of terminal uremia in a case of bacterial endocarditis strikes him as being unusual?

DR. WHITE Yes I have brought over the original classical papers of Baehr¹ and Libman² on the subject of subacute bacterial endocarditis where the renal picture is in the foreground. In our experience the patients die most commonly in the active stage of subacute bacterial endocarditis, very few go over a period of more than a year. Hence this is a rare case.

CLINICAL DIAGNOSES

Rheumatic heart disease
Mitral stenosis and regurgitation
Congestive failure
Symptomatic purpura
Subacute bacterial endocarditis

DR. PAUL D. WHITE'S DIAGNOSES

Rheumatic heart disease with mitral valve deformity, † aortic valve disease.
Subacute bacterial endocarditis, afebrile, non bacterial stage.
Glomerulonephritis with uremia.
Pulmonary infarctions with pleurisy, sub sided

ANATOMIC DIAGNOSES

Subacute bacterial endocarditis, mitral and aortic.
Rheumatic heart disease
Endocarditis, chronic rheumatic with mitral stenosis
Subacute diffuse glomerulonephritis
Infarcts of kidney and spleen
Thrombosis of splenic artery

PATHOLOGIC DISCUSSION

DR MALLORY The autopsy in this case showed extensive bacterial endocarditis, with almost the exact distribution of the previous case. Both mitral and aortic valves were involved, in this case the mitral more than the aortic. There were also vegetations on the auricular wall, and a very tiny infarct in the heart in nearly the same spot as in the previous case. A fairly old infarct was found in the spleen, but in addition there was a fresh completely occluding thrombosis of the splenic artery. Had he lived longer there would have been a total infarction of the spleen. He also had two infarcts in the central nervous system in the region of the internal capsule, one on the left and one on the right. It may add a little zest to the story to confess that he was an elevator operator in the hospital and we have all been riding up and down with this man who was shooting emboli to his central nervous system.

The kidneys were very large, weighing 400 grams, and presented the typical appearance of subacute glomerulonephritis, not the usual embolic type of nephritis seen in subacute bacterial endocarditis. This statement perhaps should be qualified. It is true that certain glomeruli show localized hyaline necrosis of one or more loops of the tuft, the lesion which Baehr describes, but the remaining glomeruli or portions of glomeruli are not negative as they should be in embolic nephritis. They show every degree of intracapillary endothelial proliferation, of thickening of the capillary walls and of fibrosis up to the point of complete sclerosis. Many tubules have atrophied and the remaining ones show dilatation and slight papillary hyperplasia—the most reliable anatomic evidence of functional insufficiency as Dr Kimmelstiel of the Boston City Hospital has recently shown us

Dr Castleman has been looking over our cases of acute and subacute bacterial endocarditis and we have had to go back from this autopsy, which is in the seventy-five hundreds, to a case which Dr Bock remembers, number 4500, in order to find another case of bacterial endocarditis which developed uremia, in other words, only two cases in three thousand autopsies. We have not made a complete search of the older cases but we found another case with autopsy number 40. It is extremely uncommon. Libman, I believe, has made the statement that he has never seen uremia, in approximately 800 cases of bacterial endocarditis, which could be ascribed to so-called embolic nephritis which Baehr described. As Dr White has already pointed out, however, diffuse glomerular nephritis may be seen in subacute bacterial endocarditis and as Libman and Baehr have shown is characteristic of the late "bacteria free" stage. There is a recent paper of considerable interest by Bell³ reviewing the changes in the kidneys in various kinds of acute endocarditis. He finds, as we do, that 90 per cent of cases of bacterial endocarditis do show changes in the glomeruli, but he is unable to classify more than half of them as of the embolic type, whereas he finds evidence of diffuse glomerulonephritis in nearly all of his cases. It must be remembered, however, that he is hunting very hard with special stains for very minute lesions, and their interpretation is rather an academic issue. Like all other observers he finds clinical renal insufficiency very uncommon.

REFERENCES

- 1 Baehr G. Glomerular lesions of subacute bacterial endocarditis. *Trans Assoc. Amer. Phys.* 27: 177 1912.
- 2 Libman, E. The clinical features of cases of subacute bacterial endocarditis that have spontaneously become bacteria-free. *Trans Assoc. Amer. Phys.* 28: 309 1913.
- 3 Bell E T. Glomerular lesions associated with endocarditis. *Am J Path.* 8: 639 (Nov) 1932.

The New England

Journal of Medicine

SUCCESSOR TO

THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1822

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

COMMITTEE ON PUBLICATIONS

R. L. LEE, M.D., Chairman HOMER GAGE, M.D.
R. B. GOSCOCK, M.D. R. M. SMITH, M.D.
F. H. LANEY, M.D.

EDITORIAL STAFF

RED HUNT, M.D. STEVEN ROSENBERG, M.D.
JOHN P. BUTCHERLAND, M.D. HANS ZIMMER, M.D.
GEORGE R. MINOT, M.D. BENJAMIN WHITE, Ph.D.
FRANK H. LANEY, M.D. HENRY R. VISTA, M.D.
BUTLAND WARREN, M.D. ROBERT N. NYR, M.D.
GEORGE L. TORREY, JR., M.D. ROBERT M. GREEN, M.D.
C. GOT LANEY, M.D. CHARLES C. LUND, M.D.
WILLIAM A. ROBERTS, M.D.

WALTER P. BOWERS, M.D., Managing Editor

ASSOCIATE EDITORS

GEORGE G. SMITH, M.D. WILLIAM B. BREED, M.D.
JOSEPH GARLAND, M.D.

THE NEW HAMPSHIRE MEDICAL SOCIETY

PUBLICATION COMMITTEE

CARLTON R. MINTHALP, M.D. HENRY H. ANDERSON, M.D.
WARREN H. BUTTERFIELD, M.D.

THE VERMONT STATE MEDICAL SOCIETY

PUBLICATION COMMITTEE

WILLIAM G. RICKER, M.D. C. F. DALTON, M.D.
L. H. ROSS, M.D.SUBSCRIPTION TERMS: \$6.00 per year in advance postage paid
for the United States; Canada \$7.00 per year; \$8.50 per year
for all foreign countries belonging to the Postal Union.Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office 5 Fenway.The Journal does not hold itself responsible for statements
made by any contributor.Communications should be addressed to The New England
Journal of Medicine 5 Fenway Boston Mass.

"CELIBACY OF THE INTELLECT"

THIS striking phrase occurs in Professor Whitehead's discussion of the Requisites for Social Progress: "Thus, in the modern world, the celibacy of the mediaeval learned class has been replaced by a celibacy of the intellect which is divorced from the concrete contemplation of the complete facts."

Such replacement constitutes not only a real but a very grave danger in the development of professionalism as it has taken place in the nineteenth century and continues in our contemporary world. "The leading intellects lack balance. They see this set of circumstances, or that set, but not both sets together. The task of coordination is left to those who lack either the force or the character to succeed in some definite career." It is a grave charge. Is it true of medicine?

There are involved difficult and delicate questions, much more easily asked than answered, because such generalizations may be true and yet in some individual cases be found not to apply. But what are the "tasks of coordination" before the medical profession?

There is, first, the coordination of other fields of knowledge with medicine, but also there are the tasks of administration which arise whenever organization takes place. They may be limited within a group, or have to do with the relations of one group to another similar group, or to a dissimilar group, or to society in more general and comprehensive organization. It is well known that physicians are difficult to organize effectively, or to keep organized, if once started, and in general they take little interest in and show slight gifts for administration. This is due in part, but not entirely to the nature of the practice of medicine: dealing with a concrete situation in which patient and physician are involved without intermediary, and without abstraction. Thus medicine may attract few persons with the administrative type of mind and then it offers limited opportunities for administrative gifts when they are present. Administration, which requires high grade talents if it is to be of a high grade, is looked upon as a sort of side issue, incidental to one's other work, perhaps necessary, but an evil.

So if one looks at the organization of medicine, wherever found, it does not as a rule attract the leading minds in the profession and to-day, in the field of most significant change of relation of the medical profession namely the so-called "socialization of medicine," leadership, intelligent, convincing, adequate illuminated by vision and insight, is noticeable by its absence.

Who really knows what is going on except on the surface? What are the hidden forces at work, in the nature of which lies the solution for the future? What do physicians know about it, except that for reasons on which they do not agree among themselves, they find it harder to make a living than formerly? Why is it, that in some respects, physicians seem almost impervious to new knowledge outside of their own field and their limited interest?

The fault lies not in the nature of the practice of medicine: the distinguished physicians of the past who were also great citizens overthrew this contention. The fault lies in our educational system in medicine which not only promotes celibacy of the intellect but almost makes it obligatory.

REFERENCE

1. Whitehead, A. N.: Science and the Modern World. New York: The Macmillan Company. P. 276. 1922.

DIPHTHERIA IMMUNIZATION—A
MAY DAY PROJECT

THE American Child Health Association announces that diphtheria immunization has been chosen by the May Day Committee of the State and Provincial Health Authorities of North America for the May Day Child Health Day project this year. The reason for selecting this

project, aside from its obvious importance, is that throughout the United States there has been practically no reduction in the number of deaths from diphtheria since 1930. Some states have materially reduced their number of deaths from this cause, in others, shocking as it may seem with an adequate means of control at hand, there has been a proportionate increase. In Massachusetts, eloquently as the proposition has been stated by many able exponents of public health, and adequately as the situation has been handled in the majority of communities, we still have such examples as Lowell and Somerville to demonstrate how unsatisfactorily a proved method of prevention can be applied.

Under our present system of medical practice, the success or failure of such an immunization plan lies in the hands of the practicing physicians. If they cannot or will not make a success at this simple method of preventing disease, then the state or community will and of necessity ought to step in and take it over, and the medical profession can at this moment ill afford to fail so signally in any of its performances.

The fulfillment of this present project is definitely placed on the shoulders of the private physicians in the belief that immunization is their function to perform, health officers are working toward this end, and the officers of the American Academy of Pediatrics and the American Pediatric Society have expressed their approval of the object and the method.

The objective of the plan, as the announcement states, is to immunize all children between the ages of six months and six years, and to maintain this as a continuing service. Coordinated action by State Departments of Health, the medical profession and parents can make the accomplishment of this objective possible.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

TRUESDALE, PHILEMON E. M.D. Harvard University Medical School 1898. F.A.C.S. Surgeon, Fall River, Mass. Address 151 Rock Street, Fall River, Mass. Associated with him is

PHIPPEN, WALTER G. A.B., M.D. Harvard University Medical School 1904. F.A.C.S. Visiting Surgeon at the Salem Hospital and North Shore Babies Hospital. Address 31 Chestnut Street, Salem, Mass. They write on "Traumatic Diaphragmatic Hernia Following War Injuries" Page 597

MOSCHCOWITZ, ELI A.B., M.D. Columbia University College of Physicians and Surgeons, New York 1900. Associate Physician, Mt. Sinai Hospital. Consulting Physician, Beth-El Hospital, Brooklyn, N.Y. Consulting Pathologist, Beth Israel Hospital New York City. His subject is "The Psychogenic Origin of Organic Dis-

eases" Page 603. Address 25 West 68th Street, New York City

EPSTEIN, SAMUEL H. A.B., M.D. Harvard University Medical School 1927. Assistant in Therapeutic Research, Boston Psychopathic Hospital. Junior Visiting Neurologist, Boston City Hospital. Assistant in Neurology and in Psychiatry, Harvard University Medical School. His subject is "Hyperpyrexia at the Boston Psychopathic Hospital" Page 611. Address 475 Commonwealth Avenue, Boston, Mass.

TOBEY, JAMES A. B.S., LL.B., M.S., Dr. P.H. Director of Health Service, The Borden Company, New York. Associate Fellow of the American Medical Association. Member New York Bar. His subject is "Pasteurization and the Courts" Page 613. Address 350 Madison Avenue, New York City.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY*

THOMAS ALMY, M.D.,
Chairman,
140 Rock Street,
Fall River, Mass.

C. J. KICKHAM, M.D.,
Secretary,
524 Commonwealth Avenue,
Boston, Mass.

WHAT IS THE OFFICE PROCEDURE FOR STERILITY EXAMINATION?

A WOMAN presents herself to her physician with the complaint that, having been married for several years, she has not succeeded in becoming pregnant. What is to be done for her?

Unfortunately, the problem of human sterility is far from simple. In the great majority of cases, the responsibility is divided between husband and wife, several different causative factors operate together to depress the fertility of each mating, and these factors may be either local abnormalities of the reproductive organs, or states of constitutional depression. Obviously, therefore, an adequate diagnostic study of the sterile mating, without which the best treatment cannot be prescribed, must involve an elaborate investigation of two individuals from every point of view.

One does well to begin with a general history and physical examination of husband and wife. This may suggest sources of chronic intoxication, faults of diet and hygiene, or indications of an endocrine disturbance.

The next step is a gynecologic history and abdominal pelvic examination of the wife. One should note, of course, all deviations from the normal. The conditions most relevant to fertility would be faulty sex hygiene, dyspareunia, inflammations, viscosity of the endocervical mucus, genital hypoplasia, and retention cysts in

*A series of short selected articles by members of the Section will be published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the Section.

the ovaries. So-called displacements of the uterus are of small importance, unless they are complicated by other items of a pathologic nature.

The practitioner should then proceed to examine the semen of the husband. The presence of a few motile spermatozoa does not absolve him from responsibility. Unless the male can produce a specimen containing at least sixty million spermatozoa of good morphology and activity per cubic centimeter of semen, he must be rated as definitely infertile and in a considerable measure responsible for the sterility of his mating.

Endocrinologic factors play a large part in the causation of human infertility. It is therefore, worth while to carry out on each partner in such cases a series of determinations of the basal metabolic rate. I say a series, because the first determination almost invariably gives results which are greatly above the true level. If the respiratory metabolism of a patient is found to be depressed, the physician is by no means justified in making a diagnosis of thyroid failure from this single datum. It becomes necessary then to carry out a long series of further tests, in order to determine precisely what gland is the primary focus of failure.

No sterility study is adequate without at least one test of tubal patency. Since insufflation of gas is simpler than injection of iodized oil the former should usually be performed first. In cases where a defect of patency is suggested, additional observations of this sort become necessary.

A study along the lines indicated will invariably identify or suggest several different abnormalities of which each to some extent depresses the fertility of the mating. Additional diagnostic study will often be required in order to identify clearly or to rule out possibilities which have been suggested. In the end, the physician will have reduced the problem to a definite number of important factors.

Treatment thus resolves itself into an attack upon all of the abnormalities which have been demonstrated. The results of such an approach to the problem of human sterility are more than twice as good as those which were obtained by former methods of inadequate diagnosis and haphazard therapeutic efforts.

SECOND ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the Committee for the week beginning April 7

Berkshire

Thursday April 11 at 4 30 P.M., at the St. Luke's Hospital, Pittsfield. Subject: Endocrinology (Second Session) Albert C. England M.D., George S. Reynolds M.D., Chairmen

Bristol North (Attleboro Section)

Tuesday April 9 at 4 00 P.M. at the Sturdy Memorial Hospital, Attleboro. Subject: Cardiovascular Disease (First Session) William M. Stobbs M.D. Chairman.

Bristol North (Taunton Section)

Wednesday April 10 at 7 30 P.M. at the Morton Hospital, Taunton. Subject: Obstetrics and Gynecology (Second Session) Arthur R. Crandell, M.D. Chairman.

Bristol South (New Bedford Section)

Friday April 12 at 4 00 P.M., at the St. Luke's Hospital, New Bedford. Subject: Cardiovascular Disease (First Session) Harold E. Perry M.D. Chairman.

Essex North

Tuesday April 9 at 4 00 P.M. at the Hotel Bartlett, 95 Main Street, Haverhill. Subject: Obstetrics and Gynecology (Second Session) Francis W. Anthony M.D. Chairman.

Essex South

Tuesday April 9 at 4 00 P.M., at the Salem Hospital, Salem. Subject: Cardiovascular Disease (Third Session) Walter G. Philippen, M.D. Chairman.

Franklin

Wednesday April 10 at 8 00 P.M., at the Franklin County Public Hospital, Greenfield. Subject: Cardiovascular Disease (First Session) Halbert G. Stetson, M.D., Chairman.

Hampden

Thursday April 11 at 4 00 P.M., at the Academy of Medicine Professional Building, 20 Maple Street, Springfield and at 8 00 P.M., at the Holyoke City Hospital, Holyoke. Subject: Endocrinology (First Session) George L. Schadt M.D. Chairman.

Middlesex East

Wednesday April 10 at 4 00 P.M., at the Melrose Hospital, Melrose. Subject: Surgery (Third Session) Joseph H. Fay M.D. Chairman.

Middlesex North

Friday April 12 at 7 00 P.M. at the St. John's Hospital, Lowell. Subject: Cardiovascular Disease (Third Session) Frederick P. Murphy M.D. Chairman.

Norfolk (Faulkner Hospital Section)

Monday April 8 at 4 00 P.M., at the Faulkner Hospital, Jamaica Plain. Subject: Obstetrics and Gynecology (Second Session) Hugo B. C. Riemer M.D., Chairman.

Suffolk

Monday April 8 at 8 00 P.M., in Sprague Hall, Boston Medical Library, Boston. Subject: Dermatology and Syphilis (One Session) Reginald Fitz M.D. Chairman.

Worcester (Milford Section)

Thursday, April 11, at 8 00 P.M., at the Milford Hospital, Milford Subject Surgery (Second Session) Joseph I Ashkins, M.D., Sub-Chairman

Worcester (Worcester Section)

Wednesday, April 10 Stated Meeting—no post-graduate session

Worcester North (Ayer Section)

Thursday, April 11, at 8 00 P.M., at the Ayer Community Memorial Hospital, Ayer Subject *The Common Neuroses and Their Treatment in Private Practice* The Psychoses—Early Diagnosis Frank S Bulkeley, M.D., Chairman

Worcester North (Fitchburg Section)

Friday, April 12, at 4 30 P.M., at the Burbank Hospital, Fitchburg Subject Cardiovascular Disease (First Session) Edward A Adams, M.D., Chairman.

COMMITTEE ON PUBLIC RELATIONS

A meeting of the Committee on Public Relations was held at the Harvard Club, Boston, on March 20, 1935, at 6 30 P.M. After dinner the business meeting was opened at 8 o'clock, Dr Robey presiding. Those present were Drs Begg, Stetson, Blaisdell, Lane, Tighe, Mongan, Frothingham, Curtis, Champion, Gear, Nye, and Bagnall.

Dr Begg reported the present status of prospective legislation of interest to the Massachusetts Medical Society.

Dr Tighe reported, as chairman of the subcommittee, on Social Legislation and Insurance.

He moved that the resolutions adopted by the House of Delegates of the American Medical Association on February 16, 1935, regarding Compulsory Sickness Insurance be approved and supported by this committee. The motion was seconded by Dr Stetson and unanimously adopted.

Dr Mongan moved that a special meeting of the Council of the Massachusetts Medical Society be called for Wednesday, April 3, 1935, to consider the report of our delegates, regarding the special meeting of the House of Delegates of the American Medical Association on February 15 and 16, 1935. The motion was seconded by Dr Tighe and adopted.

Dr Tighe moved that this committee recommend to the Massachusetts Medical Society, through the Council, the adoption and formal ratification of the resolutions passed by the House of Delegates at its special session on February 15 and 16.

Dr Bagnall moved that the subcommittee be instructed to submit to the Council at its special meeting on April 3 plans for putting into action the spirit of the recommendations of the American Medical Association regarding Sickness Insurance. The motion was seconded and unanimously passed.

Dr Blaisdell, chairman of the Committee on Hospital Relations, reported that his committee had held one meeting and was making some progress. He re-

ported that the hospitals of Greater Boston had formed a joint committee consisting of a superintendent, one trustee, and one physician, for the advancement of mutual interests, and declared that the intention of his committee was to contact this group so that the interests of the Massachusetts Medical Society could be there represented.

The secretary was instructed to publish a list of the subcommittees in the *Journal*.*

Dr Robey read a communication from the Eastern Inter-State Medical Economics' Conference, outlining the purpose of this organization, namely, mutual information and coordinated activities.

Dr Mongan moved that Dr Robey be authorized to represent the Massachusetts Medical Society in this body. The motion was seconded and passed.

Dr Robey read a communication from the American Medical Association, Department of Public Health and Public Instruction, suggesting the use of the broadcast on Sickness Insurance. This was referred to Dr Tighe's committee for consideration.

The meeting was adjourned at 10 30 P.M.

E S BAGNALL, M.D., Secretary

*The list was published in the *Journal* of March 28 on page 589.

MASSACHUSETTS LEGISLATIVE NOTES

House 1898. Resolve providing for an investigation by the judicial council as to providing a lien to secure damages of hospitals, physicians and nurses for services rendered in motor vehicle accident cases.

Referred to next annual session in House.

House 1458. A bill to create a board of examination and registration to regulate the practice of magnetic healers.

Report, leave to withdraw.

Accepted in Senate (Final)

MISCELLANY**DIPLOMATES OF THE NATIONAL BOARD OF MEDICAL EXAMINERS IN MASSACHUSETTS FOR 1934****Allston**

McGinnis, George H.
Rabinowitz, James I.

Andover

Shipman, Thomas L.

Athol

Bassow, Carlton F.

Belmont

Mavraides, William P.

Bernardston

Dean, F. Wilton.

Boston

Adams, Herbert D.
Beecher, Henry K. U.
Brenner, Harry H.

Brues, Austin M.

Carey, Benjamin W., Jr.
Chandler, Caroline A.
Cohen, Mandel E.
Dohan, F. Curtis.
Dupertuis, Milton S.
Factor, Joseph.
Fienberg, Robert.
Gaskel, Jerome.
Gauld, A. Gordon.
Hart, James C.
Hawkins, Ralph L.
Holt, William L., Jr.
Hook, William G.
Hoyt, W. Fenn.
Lawson, Chester W.

Levine, Harold D	Ipswich
Nespor Robert W	Ballley George G Jr
Phillips, Richard B	Lawrence
Rothblatt, Reuben	D Urso John J
Schultz, Kathryn L	Littleton
Segal, Maurice S.	Sanderson Robert
Simmons, Fred A. Jr	Lowell
Smith Marjorie K.	Brennan Charles L
Soley Mayo H.	Stewart, Artemas J
Sturgis, George P	Ludlow
Thompson, William P	Wisner Frank B.
Wetherbee	Lynn
Winthrop Jr	Hopkins John R.
Younge Paul A.	Marlboro
Brockton	Gazzaniga, Dante A
Cahill, John E.	Mattapan
Brookline	Koehler Lee H.
Budnitz, Edward	(deceased)
Capps, Richard B.	Vuornos Sirkka E.
Donovan, Robert J	Medford
King, Lester S	Vernaglia, John B.
Levick, Alfred D	New Bedford
Smith Harold D	Neff, Walter S
Thomson, Karl J	Neponset
Cambridge	Rogers Howard W
Dow David C., Jr	Northampton
Harris Albert H., 2d	Parker Ruth
Kirkwood, Samuel B.	North Wilmington
Charlestown	Little, Rufus R.
Finn, Herbert G	Plymouth
Chestnut Hill	Hamilton Harold H.
Walcott, Charles F	Rockland
Dedham	Lough Norbert F
Brody Myer	Roslindale
Krumphaar George D	Sewall Weston F
Dorchester	Rosbury
Lewis Joseph L.	Weiss Louis R.
East Boston	Springfield
Potito, Dominic	Cahill Robert F
East Northfield	Williams Walter W
Hardy Harriet L.	Tewksbury
Everett	Ellms, Evelyn B
French, Edward B.	Walpole
Fall River	Welch, Claude E.
Goldberg, David	Waltham
Lavoie Aurel G	Davenport, Lowrey F
Fitchburg	Westfield
Bennett, Darwin E.	Newell Howard W
Great Barrington	Whitman
Bray Walter A.	Hanley Francis J Jr
Haverhill	Worcester
Klapper Clando	Arrowood, Julia G
Nichols, Howard G	Erickson George C.
Holyoke	Finley Malcolm H
Baker Harry A.	Hagopian Norman

POSTGRADUATE LECTURES IN NEW JERSEY

Dr R. G. Hoskins Director of Research Memorial Foundation for Neuro-Endocrine Research, Harvard Medical School and Dr J. M. Looney Director of Laboratories of the Memorial Foundation for Neuro-Endocrine Research, have been giving a series of lectures before the Somerset County Medical Society of New Jersey

CORRESPONDENCE

FEE TABLE FOR PATHOLOGIC EXAMINATIONS

March 29 1935

Editor *New England Journal of Medicine*

At a meeting of the Boston Pathological Society held March 26 1935 it was decided by a unanimous vote of the members present that the Society considers as fair the appended schedule of fees and that this vote and appended schedule be submitted for publication in *The New England Journal of Medicine*

Very truly yours,

M J SCHLESINGER, M.D., Secretary
Boston Pathological SocietyRECOMMENDED FEE TABLE FOR PATHOLOGIC
EXAMINATIONS

January 1935

(These are minimum fees but subject to change in specially needy cases)

Stipend paid by hospitals under contract to be approximately product of number of tests and price therefor

Autopsy Other Than Medico-Legal

In hospitals of which the pathologist is a staff member.....\$15 00
For other hospitals or individuals.....100 00-25 00

Frozen Section Diagnosis

Other than in own hospitals.....100 00-25 00
In special cases.....15 00

Surgical Specimens

{ Private 5 00
{ Ward 3 00
{ Free 0 00
or
{ Private 5 00
{ Ward and Free..... 2.50

Bacteriology

Routine culture..... 2 00
Smear other than for t.b 2 00
Smear for t.b 3 00
Blood culture brought in..... 5 00
Blood culture taken..... 10 00
Stool culture..... 5 00
Vaccine..... 5.00
Aschheim Zondek (Ward—\$5 00)..... 10 00

Pneumococcus typing (Neufeld).....	5 00
Pneumococcus typing (Neufeld) 1 and 2 only	3 00
Dark field examination.....	5 00
Guinea pig inoculation (Ward—\$5 00).....	10 00
Basal metabolism (Ward—\$5 00).....	10 00
<i>Clinical Pathology</i>	
Urine, complete.....	2 00
Blood	
White cell count.....	2 00
Red cell count.....	2 00
Differential	2 00
Above with hemoglobin.....	5 00
Wassermann	5 00
Kahn or Hinton	3 00
Blood sugar.....	3 00
Blood non protein nitrogen.....	3 00
Both above on same specimen.....	5 00
Miscellaneous chemical tests.....	3 00 5 00
<i>Spinal Fluid</i>	
Routine complete.....	5 00
Mastic	3 00
Gold sol.....	3 00
Wassermann	5 00
<i>Gastric Analysis</i>	
Complete	5 00
<i>Feces</i>	
Occult blood.....	2 00
Ova and helminths.....	2 00
Amoeba	5 00

RECENT DEATHS

METCALF — BEN HICKS METCALF, M.D., formerly of Winthrop, Massachusetts, died in Ruskin, Florida, March 31, 1935. He was born in Meadville, Pennsylvania in 1871, and was educated in the public schools there and at Allegheny College. He graduated from the Harvard University Medical School in 1894.

He served as port physician in Boston and later settled in Winthrop. He established the Metcalf Hospital in 1906 which he controlled until it was transferred to Winthrop citizens and became the Winthrop Community Hospital. He served for several years at the Fort Banks Army Hospital with the rank of Captain in the Reserve Corps. During the World War he served with the 55th artillery in France where he was gassed. He was promoted to the rank of lieutenant colonel. His son was killed in action at Vaux, France.

By reason of the effect of the gas attack he was obliged to leave New England for Denver, California, and later Arizona. Two years ago he moved to Florida. He was a Mason, member of the Lodge of Elks, the American Legion and the Richard F. Metcalf post Veterans of Foreign Wars.

He joined the Massachusetts Medical Society in 1896.

He is survived by his widow, Mrs. G. M. Metcalf, whom he married after the death of his first wife in 1925. A daughter, Mrs. Caroline Ulf, also survives him.

MANGAN—JOHN JOSEPH MANGAN, M.D., of 97 Nahant Street, Lynn, Massachusetts, died at his home, March 29, 1935. He was born in Preston, England, in 1857, graduated from Ashton College in 1883, received the degree of M.D. from the College of Physicians and Surgeons of Boston in 1891, and also from the Harvard Medical School in 1904.

He conducted practice in Lynn, Massachusetts, for many years, and established a children's clinic at the Lynn Hospital.

He joined the Massachusetts Medical Society in 1893 and retired in 1925. He was a member of the Lynn Medical Association, the Knights of Columbus, and the Ancient Order of Hibernians.

He is survived by his widow, Mrs. Mary Ellen (Sherry) Mangan, a son, Sherry Mangan, a daughter, Miss Anna Mangan, and two brothers.

LANE—ELWIN DEXTER LANE, M.D., of 9 Locke Street, Andover, Mass., died at his home, March 25, 1935, after a short illness. He was born in 1876 in Ashburnham, Mass. His premedical education was acquired at Cushing Academy, Ashburnham. His medical degree was conferred by the Boston University Medical School in 1912. Immediately after graduating he settled in Andover and practiced there up to the time of his last illness.

He joined the Massachusetts Medical Society in 1916 and was also a Fellow of the American Medical Association. He was a member of the American Institute of Homeopathy and the Greater Lawrence Medical Society. He was affiliated with the Masonic, Odd Fellows and Knights of Pythias fraternities.

Dr. Lane is survived by his widow, Mrs. Clara A. (Friend) Lane, his father, Samuel E. Lane, of Fitchburg, and a sister, Mrs. Leonard O. Robinson, of Fitchburg.

RUSSELL — ROLFE SPAULDING RUSSELL, M.D., of Deerfield, Massachusetts, with an office in Springfield, died in the Franklin County Hospital, March 17, 1935, while apparently recovering from a septic pharyngitis.

Dr. Russell was born in St. Albans, Vermont, in 1906, the son of Perley and Eva S. Russell, and received his M.D. degree from the University of Vermont Medical School in 1930. He served in the Stamford (Conn.) Hospital as interne. He was associated with Dr. Webster K. Clark, with offices in Greenfield.

He joined the Massachusetts Medical Society in 1932 and was also a Fellow of the American Medical Association.

He is survived by his parents, his widow, Mrs. Hilda (Belknap) Russell, two daughters, Joanne, of three years, and Frances, of two weeks, and a sister, Mrs. Francis Brown, of St. Albans, Vermont.

OBITUARY

RESOLUTIONS BY THE STAFF OF THE BOSTON CITY HOSPITAL IN APPRECIATION OF DR. RALPH C. LARRABEE

The sudden death of Dr. Ralph Clinton Larrabee comes as a shock to all of his wide circle of friends and colleagues and especially to those who have served with him on the Staff of the Boston City Hospital. Our loss is greater than can be described. Yet the sense of our loss may be tempered by contemplation of the worth to the Hospital of his lifelong service. For it is by virtue of such service rendered by him and by others that the Hospital has attained its present position.

Beginning his professional career as an interne followed by a short period as an executive he soon became a member of the Visiting Staff while still a young man. He served devotedly and with distinction throughout the years, until his retirement on expiration of the specified limit of age at which time he was President of the Senior Staff. Even thereafter the presence of his name on the Roster as Consulting Physician continued to lend strength and prestige.

Throughout, his service to the Hospital was conspicuous for its faithfulness and earnestness and for the effectiveness which came from clear insight and a high degree of professional skill. A keen sense of humor enlivened his dealings both with his patients and with his associates but this did not preclude a deep consideration for the interests of all with whom he came in contact, particularly those of his junior colleagues. But the capable discharge of his routine duties was only a part of his life work. To an exceptional degree his personality was characterized by an intellectual honesty which caused him to recognize and to chafe under the limitations of medical knowledge and to strive constantly for the attainment of truth. Thus he devoted himself extensively to research on many problems, investigating questions which were vital to the future of medicine. His studies conducted as they were with unstinted labor and with scrupulous adherence to accuracy of deduction commanded universal respect.

Doctor Larrabee will be remembered not merely as one who gave an important part of his life a work to the Hospital. He will be remembered rather as an integral part of the Hospital through a long and important period of its progress. A large share in the present and in the future of the Hospital may be accredited to him as a memorial.

P. F. BUTLER, Secretary
Senior Staff

March 28, 1935
Boston City Hospital.

NOTICES

CABOT CASE RECORDS

If there is sufficient interest, the *Journal* will be pleased to arrange for publication of the Cabot Case Records in book form. A question has been submitted as to whether such volumes are procurable.

These Records are regarded as especially valuable and should be available for study and reference.

CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

At 3:30 P.M. on Thursday April 11 in the Amphitheatre of the Peter Bent Brigham Hospital Dr. Henry A. Christian, Physician in Chief, Hersey Professor of the Theory and Practice of Physic in the Harvard Medical School, will give a medical clinic. To it are cordially invited practitioners and medical students. These clinics will be repeated on Thursdays until May.

On Saturdays in the wards of the Peter Bent Brigham Hospital from 10 to 12 staff rounds will be conducted by Dr. Christian. These are open to all physicians.

REPORTS AND NOTICES
OF MEETINGS

MEDICAL LECTURE

Doctor Christian delivered the last of his series of lectures on heart disease on the twenty-fifth of February at the Peter Bent Brigham Hospital. Ninety per cent of cases of subacute bacterial endocarditis are due to the nonhemolytic streptococcus. This type of organism has a low pathogenicity and it is not known why they should settle on the valves although some believe that small fissures in the endocardium, due to chronic disease under which allow the organism to get a foothold and others believe that a group of agglutinated organisms are responsible for the lesion. The next most frequent organism is the gonococcus which causes from one to two per cent of the cases and is also of low pathogenicity. A large variety of other organisms occasionally cause the condition. It is very rare to find bacterial vegetations on normal heart valves and there is almost always a preceding valvular lesion or congenital anomaly. The acquired valvular lesions are usually rheumatic, very occasionally luetic, and rarely arteriosclerotic. From twenty to twenty-five per cent of the patients with congenital heart disease that live to early adult life die of subacute bacterial endocarditis.

Since many diseases are accompanied by a positive blood culture, as pneumonia and typhoid this sign by itself is not diagnostic of bacterial endocarditis, and this disease may have repeated negative cultures. The typical clean-cut clinical picture with the skin lesions including petechiae, subcutaneous nodules and tender fingers, together with a palpable spleen, embolic phenomena including those in the

central nervous system and with a typical temperature chart, is so significant that the positive blood culture is not needed to make a diagnosis. The great bulk of these cases occur in patients where there is no striking evidence of cardiac failure, and it is rare to have auricular fibrillation. In the early stages of rheumatic heart disease the skin is sensitive to proteins isolated from the streptococcus, while in bacterial endocarditis this is not true, and this fact is sometimes a diagnostic aid. The symptoms of the disease are largely due to toxemia caused by the organisms and to embolic phenomena. Cardiac failure may develop due to a destruction of the valves by the vegetations. The type of onset may vary tremendously, and Doctor Christian listed eighteen types that have been recognized. It has been confused with many other conditions.

There is very little to be said concerning treatment, other than that the cases occasionally get well, and that all we can generally do is make the patient comfortable, and do our best to prevent the disease from developing in those patients with chronic valvular or congenital heart disease. Infections, especially those due to the nonhemolytic streptococcus, should be cleared up as quickly as possible, and especial attention should be paid to infections in the teeth and in the tonsils.

Acute myocarditis is rare, and may be due to a variety of infections. This portion of the heart is less vulnerable to bacteria than either the pericardium or endocardium. The circulatory failure that occurs in certain infectious diseases is in part due to degenerative lesions in the heart, but mostly to disturbances in the peripheral circulation. In diphtheria we may have heart block, auricular fibrillation, or flutter, but these are not prominent causes of symptoms. Congestive failure is absent usually in these cases, and some doctors believe that digitalis does harm, although most physicians simply feel that it is of no benefit. The fluid balance should be watched, and a proper intake insisted upon, although an excess of fluid may be harmful. Drugs to improve the peripheral circulation and the myocardial insufficiency should be administered. Caffeine and adrenalin have a distinct usefulness. Although camphor is still used to a considerable extent in Germany together with cardiazol which is a camphor derivative, it is probably of little use and the same may be said for strychnine. In general, the treatment is the same as for surgical shock.

Acute pericarditis occurs very frequently, but is usually of little clinical importance. The rheumatic patient may occasionally develop this condition where it may be the cause of considerable discomfort with a high fever and increased pulse rate, etc. These patients, although they appear very sick, rarely ever die of this condition. Although the acute stage is not important clinically, the late effects with adhesions may be of considerable significance. Pain usually accompanies the fibrinous exudate, and there is commonly a friction rub. The fluid may be excessive, but should rarely, if ever, be removed.

When such patients are tapped the coronary arteries are occasionally nicked and the patient dies of hemopericardium. Doctor Christian stressed one physical sign which is known as Ewart's, or more correctly Bamberger's sign, where there is an area, varying in size, of dullness with bronchophony, and bronchial breathing which is below the angle of the left scapula. This usually occurs fairly early with only a moderate amount of fluid and is often not present when there is a large amount of fluid so that it is frequently absent in chronic pericarditis.

Chronic pericardial effusion is a rare condition and is usually due to tuberculosis. In this condition fluid up to one and a half litres may accumulate, tapping is more often necessary, and the danger of this procedure is slight because of the excessive fluid. Doctor Christian believes that the worst place to tap the pericardial cavity is that route which is usually recommended between the xiphoid and the adjacent ribs. It is safer to go in directly over the precordium either to the right or left of the sternum or just outside the apex.

Chronic adhesive pericarditis is difficult to diagnose because all of the signs occurring in this condition may be present where there are no adhesions and vice versa. These signs are due to the physiological effect of the adhesions between the pericardium and the various surrounding structures, and an interference with the action of the heart. X-ray with fluoroscopy, although occasionally wrong, is the most helpful diagnostic aid. One form of this disease where there is a great thickness of the two layers of the pericardium so that the heart is encased in fibrous tissue is rare, clinically it gives rise to recurrent attacks of ascites which are otherwise unexplained. This condition is very amenable to surgical treatment.

BROOKFIELD MEDICAL CLUB

The monthly meeting of the Brookfield Medical Club was held at the Brookfield Inn, Wednesday, March 20, with Dr J E Dalton of Warren, entertaining host, and Dr Samuel Levine, of the Harvard Medical Faculty, speaker. His subject was "Problems of Prognosis in Heart Disease."

J R FOWLER, M.D., *Secretary*

BOSTON CITY HOSPITAL

STAFF CLINICAL MEETING

Wednesday, April 17, 1935, at 8 15 P M
Cheever Amphitheatre

Newer Methods in Diagnosis and Treatment of Nervous Diseases

- 1 Treatment of Hydrocephalus by Endoscopic Coagulation of the Choroid Plexus Dr Tracy J Putnam
- 2 Therapeutic Use of Lumbar Puncture Dr H Houston Merritt.
- 3 Simple Methods of Treatment of the Neuroses Dr Merrill Moore

- 4 The Results of Treatment of Combined System Disease. Dr Philip Solomon and Dr Maurice Strauss
- 5 The Differential Diagnosis and Treatment of Headache Dr Theodore J C von Storch.
- 6 Treatment of Narcolepsy with a New Drug Dr Myron Prinzmetal and Dr Wilfred Bloomberg.

Doctors and medical students cordially invited.
COMMITTEE ON HOSPITAL CLINICS.

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Shattuck Street Entrance) Tuesday evening April 16 at 8 15 P.M.

PROGRAM

Presentation of Cases.

The Clinical Aspects of Migraine. By A. H. Gordon M.D., Associate Professor of Medicine, McGill University

MARSHALL N FULTON M.D. *Secretary*

WORCESTER DISTRICT MEDICAL SOCIETY

HAHNEMANN HOSPITAL

Wednesday April 10 1935

PROGRAM

- 5 00-6 00 P.M. Scientific Medical Motion Pictures
- 6 30 P.M. Dinner
- 7 30 P.M. Business and Scientific Session.

1. Hydronephrosis—Case Report. Dr Lester Felton.
2. Thyrotoxicosis and Diabetes—Case Report. Dr Raymond Savignac.
3. Bilateral Glaucoma—Case Report. Dr Percy Whitney
4. Carcinoma of Rectum—Case Report. Dr David Ljungborg
- 5 Use of Suprarenal Cortex in Vomiting of Pregnancy—Preliminary Report. Dr Joel M Melick.

ERNEST B EMERSON M.D. *President*,
ERWIN C. MILLER, M.D., *Secretary*

NOTICE

The spring examination of the Worcester District Board of Censors for the State Medical Society will be held in the Arts Room of the Worcester Public Library Elm Street, at 4 30 P.M., Thursday May 2 1935

WILLIAM HARVEY SOCIETY

The next meeting of the William Harvey Society will be held Friday April 12 in the Auditorium of the Beth Israel Hospital Boston at 8 00 P.M.

PROGRAM

Speaker Dr Jonathan C Meakins President, American College of Physicians.
Subject Cardiology During the Past Three Hundred Years—The Legacy of William Harvey "

Chairman Dr Cadis Phipps Professor of Medicine, Tufts College Medical School.

Dr Meakins M.D. McGill University, 1904. LL.D. Edin., F.A.C.P., F.R.C.P. (O) and First President (1929-1931) F.R.C.P. (Edin.)

SOUTH END MEDICAL CLUB

The next regular meeting of the South End Medical Club will be held at the headquarters of the Boston Tuberculosis Association 554 Columbus Avenue Boston, on Tuesday April 16 1935 at 12 noon The name of the speaker and his subject, will be announced later All physicians are cordially invited to attend the meeting. Luncheon will be served at 1 o'clock.

WORCESTER NORTH DISTRICT MEDICAL SOCIETY

The Annual Meeting of the Worcester North District Medical Society will be held at the Burbank Hospital Fitchburg Wednesday April 24 The annual oration will be given by Dr Howard M Clute of Boston His subject will be 'New Surgical Methods in Old Diseases'

Dinner at 1 P.M

Election of Officers

FRANCIS M McMURRAY M.D., *Secretary*

BOSTON SOCIETY OF ANESTHETISTS

The Boston Society of Anesthetists will meet at the Hotel Kenmore Tuesday April 9 at 8 P.M. Dr Albert H. Miller of Providence will speak on 'Paraldehyde and Other Hypnotics'

Physicians medical students and others are invited

R. F. SHELTON M.D., *Secretary*

PLYMOUTH DISTRICT MEDICAL SOCIETY

A stated meeting of the Plymouth District Medical Society will be held at the Lakeville State Sanatorium Thursday April 18 1935 at 11 A.M.

Election of Officers

Annual Oration Dr Edward B Gilmore 'Diagnosis of the Acute Abdomen'

A Trip Through Africa New Zealand and Tahiti
Mr Alexander McLeod Norwood Mass

Illustrated with lantern slides and moving pictures

Dinner

G. A. MOORE, M.D., *Secretary*

SOCIETY MEETINGS CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK
BEGINNING MONDAY APRIL 8, 1935

Tuesday April 9—

12:30-4 P.M. Ward Visit, Massachusetts Eye and Ear Infirmary

4-5 P.M. Seminar, Pediatric Laboratory Massachusetts General Hospital

8 P.M. Massachusetts Psychiatric Society Boston Psychopathic Hospital

8 P.M. Boston Society of Anesthetists Hotel Kenmore.

Thursday, April 11—

- *12 M Clinico-Pathological Conference Massachusetts General Hospital
- 112 M Clinico-Pathological Conference Children's Hospital
- *3 30 P M Medical Clinic. Dr Christian. Peter Bent Brigham Hospital
- 14 30 P M Surgical Clinic Children's Hospital Amphitheatre

Friday, April 12—

- 112 M Clinical Meeting of Children's Medical Staff. Massachusetts General Hospital Ether Dome
- 8 P M William Harvey Society Auditorium, Beth Israel Hospital, Boston

Saturday, April 13—

- *10-12 Medical Staff Rounds Dr Christian Peter Bent Brigham Hospital

- *Open to the medical profession
- †Open to Fellows of the Massachusetts Medical Society

April 4—Faulkner Hospital Clinical Meeting will be held at 5 P M

April 9—Massachusetts Psychiatric Society will meet at the Boston Psychopathic Hospital at 8 P M.

April 9—Tuesday, 8 P M. Massachusetts Dietetic Association. Subject "Small Hospital Problems." Miss Margaret Copeland, Superintendent Free Hospital for Women

April 9—Boston Society of Anesthetists See page 645

April 11—Clinic at the Peter Bent Brigham Hospital See page 643

April 12—William Harvey Society See page 645

April 16—Harvard Medical Society See page 645

April 16—South End Medical Club See page 645

April 17—Boston City Hospital, Staff Clinical Meeting See page 644

April 23—The Massachusetts Society for Social Hygiene will meet at the University Club, Boston. For information address Dr E Granville Crabtree, 99 Commonwealth Avenue Boston

April 25, 26, and 27—The American Association on Mental Deficiency will meet at the Palmer House, Chicago. For information address the Secretary, Dr Groves B Smith, Godfrey, Illinois

April 29 May 3, 1935—The American College of Physicians will meet at Philadelphia. For information address Mr E R. Loveland, Executive Secretary, 133-135 South 36th Street, Philadelphia Pa.

June, 1935—Medical Library Association will meet in Rochester N Y. For details, address the Secretary Miss Frances N A Whitman Librarian, Harvard University Schools of Medicine and Public Health Boston, Mass

June 10—American Medical Golfers Play in Atlantic City See page 616

June 11—American Heart Association The Eleventh Scientific Session will be held from 9 30 A.M. to 5 30 P M., at the Hotel Claridge, Atlantic City, N J. The program will be devoted to various subjects on cardiovascular disease. Gertrude P Wood Office Secretary, 50 West 50th Street, New York, N Y

June 12 and 13—Academy of Physical Medicine, Annual Meeting will be held at the Claridge Hotel Atlantic City, N J. For further details address Arthur H. Ring, M D, Secretary-Treasurer, Arlington, Mass

June 17 to 21—Convention of the Catholic Hospital Association will be held at Creighton University, Omaha, Nebraska. For information address the Most Reverend Joseph Francis Rummel, D D, Bishop of Omaha.

June 27 29 Inc—British National Association for the Prevention of Tuberculosis will be held at Southport, England. Persons desiring further information should write to Miss F Stickland Secretary of the Association at Tavistock House North Tavistock Square, London, W C 1 England

July 1 23—University of Freiburg i Br will hold a vacation course of the medical faculty. For information address Akademische Auslandsstelle der Universität Freiburg i Br Schwimmbadstrasse 8, Germany

July 22 27—Seventh International Congress on Industrial Accidents and Diseases Brussels, Belgium. The American Committee of the Congress is under the chairmanship of Dr Fred H. Albee New York, for the Section on Accidents and that of Dr Emery R. Hayhurst, Columbus Ohio for Industrial Diseases. The American delegation to the Congress will sail from New York on July 8 and visit London, Amsterdam The Hague and Paris and optionally Budapest. Physicians interested in the Congress or in the medical tour in conjunction with it, may address the Secretary, Dr Richard Kovacs 1100 Park Avenue New York City

October 7-10—American Public Health Association will meet in Milwaukee, Wisconsin. For information address the American Public Health Association, 50 West 50th Street, New York City

DISTRICT MEDICAL SOCIETIES**ESSEX NORTH DISTRICT MEDICAL SOCIETY**

The Annual Meeting will be held in May. Time, place and subject to be announced

E S BAGNALL, M D, Secretary

FRANKLIN DISTRICT MEDICAL SOCIETY

Meeting will be held on the second Tuesday of May at the Weldon Hotel, Greenfield, Mass

CHARLES MOLINE, M D, Secretary

Sunderland

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

May 8—Winchester

K L MACLACHLAN, M D, Secretary

1 Bellevue Street, Melrose

NORFOLK DISTRICT MEDICAL SOCIETY

May—Annual Meeting. Date, time and place to be announced

PLYMOUTH DISTRICT MEDICAL SOCIETY

April 18—See page 645

SUFFOLK DISTRICT MEDICAL SOCIETY

April 24—Clinical Meeting at the Children's Hospital. The medical profession is cordially invited to attend this meeting

ROBERT L DeNORMANDIE, M D, President.

GEORGE P REYNOLDS, M D, Secretary

WORCESTER DISTRICT MEDICAL SOCIETY

April 10—See page 645

May 8—Wednesday afternoon and evening. Annual Meeting of the Worcester District Medical Society. The time and place of this meeting will be announced later

ERWIN C MILLER, M D, Secretary

27 Elm Street, Worcester

WORCESTER NORTH DISTRICT MEDICAL SOCIETY

April 24—See page 645

BOOK REVIEW

International Clinics Edited by Louis Hamman
Volume IV Forty-Fourth Series, 1934 326 pp
Philadelphia J B Lippincott Company

The earnest endeavor of Dr Hamman, the editor, to maintain these volumes at a high level is indicated by his brilliant diagnostic discussion as part of a clinical pathological conference. This vicarious clinical bedside teaching as exemplified by his logical and informative contribution is an outstanding feature of this volume.

It is ably supported by others, such as the article on arteriovenous communications by Emile Holman. A review of the present status of our knowledge of the clinical aspects of Vitamin B by Cowgill is also worthy of mention. The remainder of the volume is likewise made up of articles of merit too numerous to mention.

The reviewer does not hesitate to mention that he regards this publication as one of particular merit for any practitioner seeking to enhance his knowledge without the burdensome necessity of delving into and wading through a mass of literature of the very mixed quality that characterizes so much of the medical literature extant.

The New England Journal of Medicine

VOLUME 212

APRIL 11, 1935

NUMBER 15

TRAUMATIC AND HEMORRHAGIC SHOCK, EXPERIMENTAL AND CLINICAL STUDY*

BY G. KENNETH COONSE, M.D.† PHILIP S. FOINIL, M.D.† HAROLD F. ROBERTSON, D.Sc. (MED.)†
AND OTTO E. AUFRANC, M.D.†

INTRODUCTION

SHOCK has long been a recognized clinical entity and has served as the subject of numerous experimental studies. The real stimulus for more detailed observation and investigation arose during the late world war. At the beginning of the war it was generally maintained, as a result of previous experimental work, that shock was due to a deficiency of blood or the circulating fluid content of the blood. Hemorrhage had long been recognized as an important contributory cause of shock. As more accurate observations were recorded during the war many clinicians found themselves unable to distinguish between the shock-like state following extensive hemorrhage and that associated with severe trauma. A special investigation committee for the study of shock and related conditions was appointed by the Allies. This committee published numerous reports on the observed phenomena of both experimental and clinical shock, together with valuable suggestions in respect to treatment. The importance of warmth, restoration of blood volume (by blood transfusion and gum acacia) depleting effects of ether anesthesia, and the necessity of prompt treatment, were all emphasized in the reports of the committee. Cannon produced evidence to show that a shock-like state might result from toxic substances originating in injured muscle tissue.² Further attempts to isolate a specific substance at first seemed somewhat hopeful, particularly when it was found that the injection of histamine caused a very low blood pressure, resembling that found in traumatic shock. Additional work along this line failed to establish histamine as the causative factor in traumatic shock.

An extensive literature concerning shock has appeared since the war. A critical review has shown that very little progress has been made in the treatment of shock in the post war period.

More recent workers in the field, notably Blalock and associates, have steadfastly maintained that hemorrhage or blood volume loss alone accounts for all the observed phenomena of traumatic shock.³ The work has been rather unfavorably criticized. The whole question, in the minds of many clinicians is far from permanently settled. In fact, most surgeons who have handled shock cases will recall individual patients where the amount of hemorrhage was in no way commensurate with the severe degree of shock present.

It is not the purpose of this paper to review the literature on shock. Indeed this would require a separate communication of considerable length. Several excellent monographs and numerous papers with full reference to the literature may be found on the subject. We refer particularly to the reports of the special investigation committee on Surgical Shock, the monograph by Cannon on Traumatic Shock, literature by Crile, Henderson, Howell, McDowall, and the recent papers of Blalock, Phemister, and Cannon.^{4,5,6,7,8,9}

The experimental work reported here has extended over a period of three years and was undertaken in an attempt to analyze more carefully and critically the exact relationship between traumatic and hemorrhagic shock. It was our purpose to determine whether typical secondary shock could be produced by hemorrhage alone, or if other factors were essential to the production of a shock-like state. Additional experimental work has been carried out in an effort to demonstrate the presence of a specific toxic substance. Extensive experimental and clinical research has been conducted in relation to the rôle of acidosis in shock and the establishment of the vicious cycle of anoxic acidosis.

DEFINITION

Shock has been divided into so-called primary and secondary shock, essentially on the basis of the observed clinical findings. Primary shock may be described as a condition of great circulatory collapse sudden in onset and usually associated with loss of consciousness. It is often caused by a stunning blow or serious disturbance of the central nervous system and may be well likened to a state of syncope or collapse. As

Read before the American College of Surgeons, October 15, 1934, at the Boston City Hospital.

From the Surgical Research Laboratory, Harvard Medical School, and Boston City Hospital.

The authors wish to thank Dr. Allan Butler of the Children's Hospital for making P.H. sodium, potassium and chloride determinations on certain of the blood samples.

*George G. Kenne—Junior Visiting Surgeon, Boston City Hospital. Foile, Philip S.—Assistant in Surgery, Boston City Hospital, Out Patient Department. Robertson, Harold F.—Assistant Resident Surgeon, Peter Bent Brigham Hospital. Aufranc, Otto E.—Surgical Intern, Boston City Hospital. For records and addresses of authors see "This Week's Issue," page 694.

long ago as 1870 a sufficient explanation seems to have been given for primary shock, when Goltz demonstrated that a blow on the exposed mesentery of a suspended frog caused reflex inhibition of the heart through the vagus, and reflex dilatation of the arteries in the splanchnic area where the blood tended to collect by gravitation¹⁰. With this state of collapse, usually temporary in nature, we are not particularly concerned. Far more serious is the clinical entity known as secondary shock. This may be briefly described as a condition of the organism characterized by low arterial blood pressure, a rapid and thready pulse, shallow, rapid or irregular respirations, general restlessness, insatiable thirst, cold and often pulseless extremities, and other evidences of great circulatory disturbance. The latter condition, unlike primary shock, is usually associated with a relatively clear mental state. Secondary shock ordinarily follows moderate or severe injuries, particularly those involving a good deal of muscle tissue, exposure to cold, and repeated small or great hemorrhages. More often many of these factors are associated in the production of shock. Frequently primary and secondary shock are both seen in the same individual, primary shock subsiding, to be followed in a variable period of time by secondary shock. The two conditions at times merge imperceptibly one into the other.

METHODS

In order to make comparative studies of the effects of trauma and hemorrhage in the laboratory, animal experiments were carried out simultaneously on traumatic and hemorrhagic shock. Whenever possible healthy adult dogs of about the same general type and size were used. Tracings were made on a smoked drum by means of a recording kymograph. In most of the experiments graphic records were made of chest and abdominal excursions, intrapleural pressure, blood pressure (at times venous pressure), heart rate, and body temperature, the latter recorded at frequent intervals. These experiments were all carried out under the usual laboratory conditions.

In addition to these graphic records blood studies were made on most of the animals. These included blood counts, hemoglobin and hematocrit readings, oxygen content and capacity, and carbon dioxide content and capacity. The samples for blood gas analysis were collected in the usual way under oil and the analyses made by means of the Van Slyke machine. In some instances chemical determination was carried on throughout the experiment including serum pH, chloride, sodium, potassium, and inorganic phosphorus.

Ether was used as the anesthetic in the first large group of experiments, and nembutal in the remaining groups. A few experiments in

the hemorrhage group were carried out under novocain anesthesia. Control determinations were run in each group, i.e., a sample of blood was taken in each instance before trauma or hemorrhage. Average normal values were established from a control group of animals not subjected to either hemorrhage or trauma.

Trauma was produced in either one or both hind legs in the usual way, and repeated until the so-called critical level of blood pressure had been reached. This point, i.e., the point at which restoration of blood pressure no longer occurs in a given interval of time following trauma, varied tremendously in different animals.

Hemorrhage was produced in the experimental animal by inserting a small cannula into the femoral vein. By means of rubber tubing and a small metal clamp it was possible to regulate the rate of blood loss. The hemorrhage group was further subdivided into rapid and slow hemorrhage. Similar recordings and chemical studies were made in this group, often simultaneously with the traumatic group.

When the blood pressure had reached the critical level, the efficacy of various methods of treating shock was determined. The following method or combination of methods was tried: first, the addition of normal saline solution in varying amounts (from 100 to 1000 cc), secondly, the injection of saline plus glucose, thirdly, the transfusion of whole blood (100 to 400 cc), fourthly, the injection of gum acacia (100 to 300 cc), fifthly, the use of CO₂ inhalations, sixthly, the injection of sodium bicarbonate and sodium carbonate, seventhly, combinations of the above methods, such as saline, followed by glucose, followed by sodium bicarbonate, or saline, followed by glucose, followed by gum acacia, followed by whole blood, or saline followed by gum acacia, or glucose followed by CO₂ inhalations, etc. These various agents were employed both in early and late shock. In addition to the above work, an attempt was made to repeat and extend some of the experimental work reported by Cannon and co-workers.

Further work has been conducted in an effort to determine the presence or absence of a toxic substance arising in muscle tissue. In the latter group of experiments the following procedure was employed. The leg was amputated after application of a tourniquet at the junction of the middle and upper third of the thigh. The entire mass of muscle tissue was then taken from the thigh and divided into two equal portions. The blood was thoroughly removed from one portion with saline, by cutting the muscle into relatively small segments with a sharp knife and repeatedly washing it with saline. These washings were kept separate and appropriately labeled 1st, 2nd, and 3rd fractions. The washed muscle tissue was then traumatized

by pounding on a granite slab with a wooden mallet until thoroughly disintegrated. The macerated material was placed in a beaker, thoroughly shaken with saline, and the washings appropriately labeled. The remaining half of the muscle tissue was then traumatized before extracting the blood in the tissues with saline and three fractions obtained as in the first instance. The effect of injecting these various fractions on the blood pressure, heart rate, respirations, etc. was observed and recorded in the usual way. We soon found that the most toxic fraction was that obtained from unwashed traumatized muscle tissue containing the original blood. This fact led to further experiments in relation to the toxicity of laked blood in the shocked animal.

The experiments were all conducted to a fatal termination, the time varying from one to ten hours. Most of the dogs were sacrificed at the end of four to six hours, especially the treated dogs who were recovering, as judged by blood pressure, intrapleural pressure, and blood gas studies. A postmortem examination was performed in each instance. This included a careful examination of the thoracic and abdominal cavities, and of the various organs and tissues contained therein. Sections were taken for microscopic study.

RESULTS

General Observations

The results will be largely confined to graphic records, to avoid the confusion which would of necessity arise from a detailed tabulation of a large number of experiments conducted over a period of years. We have recorded the observed physical and chemical findings in average figures. In this way data on blood pressure readings, blood gases (including CO_2 and O_2 content and capacity) and hematocrit, in relation to time intervals have been graphically recorded and the effects of the use of different substances noted in the treatment of both early and late shock. By consulting the chart, it is possible to visualize the average fall in blood pressure in the average dog for any given length of time following trauma or hemorrhage. In a similar way one may readily determine the fall of CO_2 or O_2 content or capacity.

There are certain observed phenomena which apparently are common in both the hemorrhagic and traumatic group. For example, we were early impressed with the great variation of individual animals in their response to trauma or hemorrhage. This response often seemed independent of size, age or species, although in general it may be fairly stated that the larger dogs withstood trauma better than the smaller ones. Following either trauma or hemorrhage, there is a sudden fall of blood pressure with a gradual return to an essentially normal level. After

a few repetitions the blood pressure gradually reaches a lower peak level following each trauma, until the critical level results. At this point there is no adequate recovery response on the part of the animal to either hemorrhage or trauma, and the blood pressure continues to fall slowly and steadily, though occasionally rapidly, to a fatal outcome. As the severity of shock increases, other observable phenomena equal in importance to the fall of blood pressure have been noted. One of the earliest and most important physiological changes is the alteration in the character of respiration. There is a decided shift from the thoracic to the abdominal type, often associated with irregularity of the rate and depth of respiration. The intrapleural pressure becomes less and less negative, until, as the critical level is reached, the intrapleural pressure is so nearly atmospheric that in many instances it is no longer recordable. An increase of the negative intrapleural pressure always precedes a favorable elevation of blood pressure. We have noted in our experiments that variation of the pulse rate in the dog is a somewhat unreliable observation as a guide to the efficiency of the circulation. Thus at times, the pulse may be exceedingly rapid when the blood pressure is at an adequate level, or the pulse rate may be irregular or slow when a critical level of blood pressure has been reached.

In general the body temperature of both groups fell, but this reduction was much more striking in the traumatized animals. The peripheral tissues were a good deal colder in dogs subjected to trauma than in those subjected to hemorrhage, and there appeared to be considerably more stasis in the former group as judged by examination of the mucous membranes and tongue.

Chemical Observations

Hematocrit readings and blood counts in dogs subjected to trauma showed concentration of the blood with an increase of cells and loss of serum. The hemorrhagic group showed the reverse picture of decreased cells and increased serum. In rapid hemorrhage, sufficient time did not elapse for the dilution of body fluids to occur. The traumatic group showed considerable hemolysis in all of the samples in spite of the most careful preventive measures in taking the samples. No hemolysis was noted in the hemorrhage experiments. The pH rapidly swung to the acid side in trauma. The hemorrhage group showed no change in pH in rapid hemorrhage and only a gradual change toward the acid side in the slow hemorrhage group. Both slow hemorrhage and trauma showed a striking reduction in the CO_2 content and combining power. Little fall of CO_2 content or capacity was noted in the animals subjected to rapid hemorrhage. Strikingly enough the O_2

content was increased somewhat in the traumatic group and diminished in the hemorrhage group in proportion to the actual hemoglobin lost. This increase of O_2 was in sharp contrast to the fall in the CO_2 content and the sharp fall of blood pressure. If no treatment was instituted all of these animals died within a very short interval of time after the critical level had been reached.

TREATMENT

In general it may be fairly stated that early shock presents no serious problem in treatment.

treatment, not only to supply the necessary CO_2 , but to supply base to combat the acidosis present and restore the altered pH to normal. The injection of as little as 50 cc of 5 per cent sodium bicarbonate solution resulted in marked improvement in the experimental animal. The character of the respirations changed from abdominal to thoracic and became deep and vigorous in type. Intrapleural pressure became more negative, the blood pressure rose, individual contractions of the heart became stronger, circulation through the peripheral tissues im-

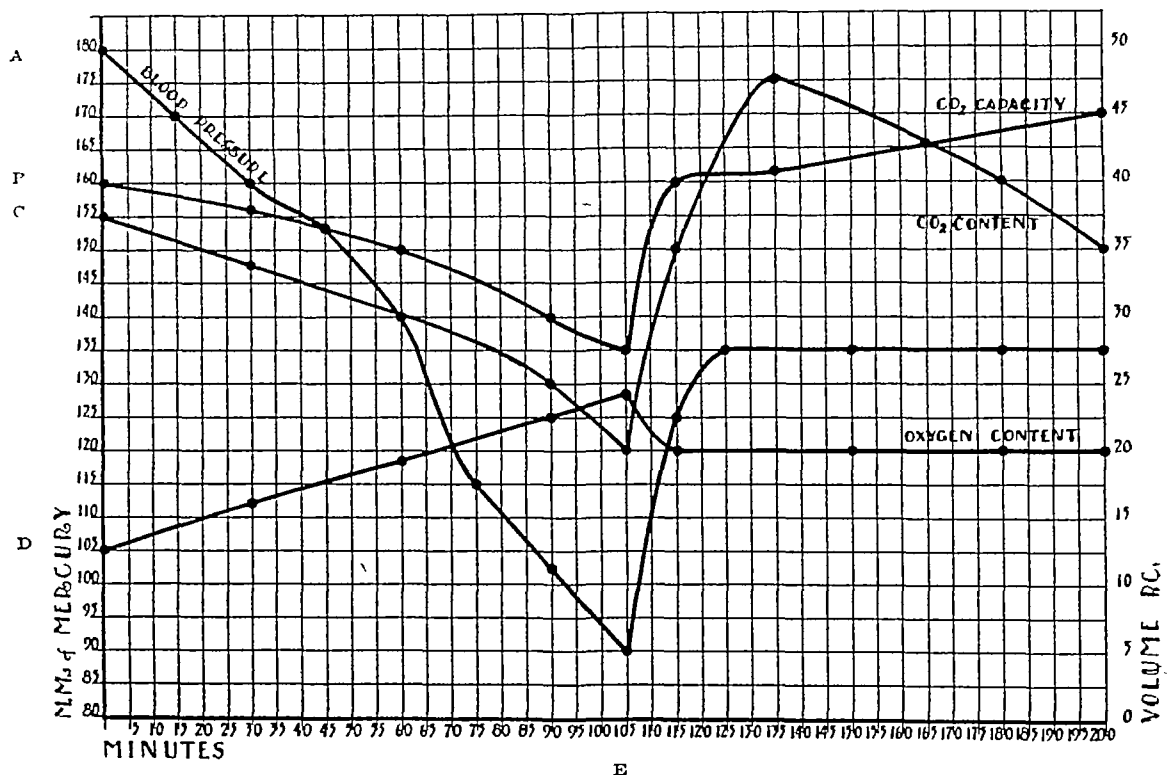


FIGURE 1 CHART SHOWING THE CHEMICAL CHANGES IN TRAUMATIC SHOCK

- a Blood pressure
- b CO_2 capacity
- c CO_2 content
- d Oxygen content
- e Alkali was given at 105 minutes

This chart well illustrates the fall of blood pressure and drop in CO_2 content and capacity. Note the rise in oxygen content and that the oxygen content fell sharply after the administration of alkali. Alkali was given when the blood pressure was dropping rapidly. There was a resultant steep

rise of blood pressure to a satisfactory level which was maintained throughout the experiment. CO_2 content and capacity also rose sharply. It is interesting to note in this respect that the CO_2 capacity continued to rise while the CO_2 content gradually fell.

The only real problem is clinical recognition. Cases of mild shock in both groups respond to replacement of lost tissue fluids and blood volume by the administration of saline, glucose, gum acacia, whole blood, or various combinations of these solutions. Restoration of blood volume loss in the case of hemorrhage is undoubtedly best supplied by whole blood, as this gives both red cells and serum.

In severe shock, one is faced with quite a different problem. Our blood gas studies early demonstrated that the fall in blood pressure, almost directly paralleled the fall in CO_2 content and capacity. This fact logically suggested the use of the alkaline carbonates as a method of

proved, and the animal's body temperature rose. The pulse rate was very little affected. These observations are in striking contrast to the effects produced by the administration of saline, or saline and glucose, whole blood, or gum acacia. None of these latter substances produced the prompt stimulation of respiration and rise of blood pressure constantly associated with the injection of alkali. The addition of whole blood and gum acacia in moderate shock usually resulted in a gradual improvement in the condition of the animal, with rising blood pressure and eventual restoration of the circulation to an essentially normal level.

All of these substances, however, produced

only temporary benefit in cases of severe shock. In fact, they did not seem to be of so great benefit as repeated small injections of alkali. In this respect we wish particularly to stress that

shown that the CO_2 content and capacity gradually fall, but are again restored by the injection of alkali. Clinically successive injections of alkali result in a rise of blood pressure and

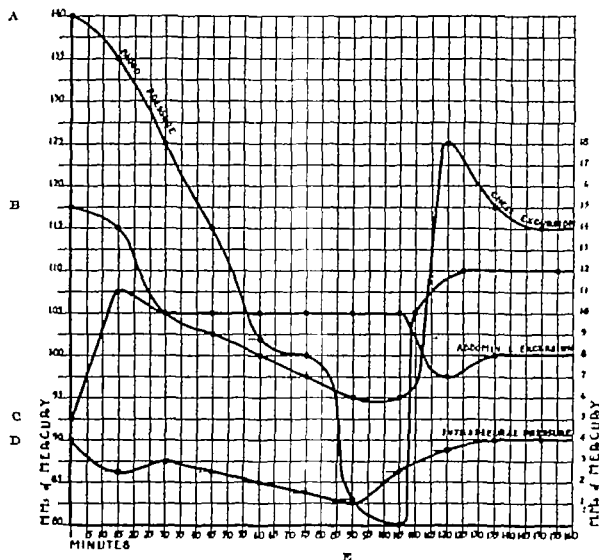


FIGURE II. CHART ILLUSTRATING THE MECHANICAL FACTORS IN SHOCK

- A. Blood pressure
- B. Abdominal excursion
- C. Chest excursion
- D. Intrapleural pressure
- E. Alkali administered

Note the steep fall of Blood Pressure and fall of Intrapleural pressure. The abdominal excursions increase as the thoracic movements diminish. Following the administration of alkali these revert to normal type with chest excursion predominating

and Intrapleural negative pressure returning to a normal level. This increase of negative pressure precedes the rise of Blood Pressure.

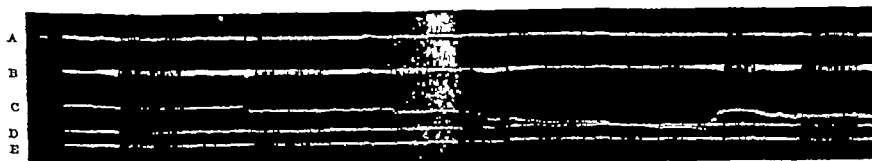


FIGURE III.

- A. Abdominal excursions
- B. Thoracic excursions
- C. Blood pressure
- D and E. Intrapleural changes

Note the stimulation of respiration with each successive trauma and the gradual fall of blood pressure until the critical level is reached. This experiment shows particularly well the fall of intrapleural pressure as the depth of shock increases.

Not also the sharp increase in thoracic excursions following the administration of alkali at F. The pulse pressure and blood pressure rose rapidly and remained at a satisfactory level. The general condition of the animal improved strikingly.

the beneficial effect of alkali is gradually lost in severe cases and additional injections must be given at intervals of from thirty minutes to one hour or as often as blood pressure and general condition warrant. Blood gas studies have

improvement of the general condition almost exactly parallel to the initial physiological improvement. The injection of sodium bicarbonate favorably affected the contraction of the heart itself, as evidenced by increasing vigor of con-

traction and continued pulsation of the heart even where respiration had altogether ceased. This improvement of the general circulation was strikingly shown in the peripheral tissues, and was noted in all animals treated with alkali, even cases that went on to a fatal termination. The only possible danger noted in alkaline therapy was an initial fall of blood pressure upon a too rapid administration. This was easily avoided by relatively slow injection, and in some instances by continuous intravenous drip. From a theoretical point of view, an initial fall of pressure such as that encountered in rapid administration might be seriously detrimental. No such difficulty was encountered in any of our experimental animals. The injection in conscious animals of 200 or 300 cc of 5 per cent bicarbonate, either in distilled water or saline, seemed to have no untoward effects.

tion was discontinued because of toxic effects, the animal was in a state of shock more profound than before the inhalations were started.

In a survey of our blood gas studies we were particularly impressed with the fact that there was no such proportionate reduction of oxygen content and combining power as there was in the case of CO_2 content and combining power. This fact suggested the possibility that at least part of the anoxemia was due to failure of oxygen utilization. Although oxygen was present in the blood to the usual extent, it was apparently not available to the tissues. We have carried out preliminary experiments using various oxidative enzymes. The work has been particularly encouraging in relation to glutathione. It is interesting to note in this respect that reduced glutathione is oxidized by molecular oxygen, the reaction taking place readily in an

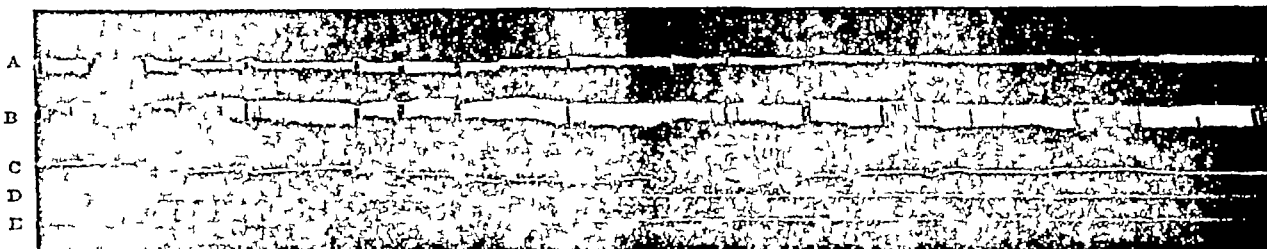


FIGURE IV

- A Chest excursions
B Abdominal excursions
C Blood pressure
D and E Intrapleural changes

The initial blood pressure in this animal was 180 mm systolic. Temperature 102. Respirations 32. Note that after each trauma the blood pressure fell until at point F it had reached a critical level of 80. At this time the pulse rate was very irregular, respirations shallow and irregular. This latter finding is particularly characteristic of the critical point in traumatic shock. At G alkali was given. Note immediate improvement in respiration with renewed regularity. Increased

depth of thoracic breathing and slowed rate. Improvement in regularity of pulse, increased negative intrapleural pressure etc. In this experiment the initial CO_2 content was 38 and the CO_2 capacity 45. When the shock level was reached the CO_2 content had fallen to 21 and the capacity to 30. Following the administration of alkali CO_2 content went up to 48 and CO_2 capacity to 38. It is thus seen that the improved physical, chemical and clinical findings are intimately related.

In cases of moderately severe shock no improvement was noted from the injections of large amounts of saline. In fact, the animal's condition often became progressively worse, presumably due to dilution of the blood and increased oxygen lack.

The inhalation of carbon dioxide gas in the shocked animal gave a very steep rise of blood pressure with marked stimulation of respiration, heart action and general circulation. CO_2 content and capacity rose steeply with the rise of blood pressure. The oxygen combining power remained unchanged while the oxygen content varied somewhat irregularly. Beneficial effects, however, were promptly lost with the cessation of CO_2 inhalations, and curiously enough the CO_2 combining power and content fell within a few moments to the previously low level. When the carbon dioxide inhalations were prolonged and the concentration of the gas increased, the beneficial effects merged into toxic effects, respirations became irregular and of the abdominal type, blood pressure began to fall, and the pulse rose. When the CO_2 inhala-

alkaline medium, iron apparently acting as a catalyst. In the few instances where this substance has been used, we have been able to restore and maintain the animal's blood pressure above the critical level when all other means of treatment were of no avail. This work is still in progress and will be reported in detail at its completion.

AUTOPSIES

Our postmortem findings in traumatic shock may be briefly stated to resemble in every respect those previously described in the literature.¹¹ The vascular system displayed contracted large vessels, systolic heart (containing only a small amount of blood), dilated peripheral small vessels, usually a considerable collection of blood in the liver, spleen, and large venous radicals, and very little blood in the lungs themselves. The lungs were usually quite pink in color. The blood itself was viscous in character in accord with the premortem findings. Tissue grossly and microscopically showed general edema of the serous type, and swelling due

to choking of small vessels together with considerable infiltration of the injured tissue by blood cells and blood tinged serum. Although no careful measurements were carried out, it was felt that this redistribution of the circulating blood volume together with the fluid in the traumatized tissues could adequately account for the lost circulating fluid.

The tissues in hemorrhagic shock showed the typical picture of acute exsanguination: very little blood in the lungs, liver, spleen, kidneys or venous radicals. The blood was watery and thin. The picture was typically that of blood loss, plus a certain amount of peripheral vascular stasis. The lack of blood in the peripheral tissues in both traumatic and hemorrhagic shock is a very striking feature. Little bleeding was encountered in cutting through the thoracic musculature in the untreated shocked animal, whereas in the animals treated by alkaline therapy, the amount of blood in the peripheral tissues seemed essentially normal.

It is interesting to note that in a few of the experimental animals where difficulty was encountered in producing a state of shock the autopsy showed consolidation of one or both bases of the lungs.

CLINICAL RESULTS

Although our series of human cases is relatively small and in many instances the data incomplete, wherever possible, we have obtained blood studies, and noted the effects of alkaline therapy occasionally in conjunction with saline and glucose or whole blood transfusion. In general it may be stated fairly that the clinical findings and blood studies have resembled exactly those encountered in the experimental animal.

It is particularly difficult in human beings to control the clinical experiments as in this instance one is dealing with an extremely serious condition. It is not always possible to state that any given case might not have recovered without the use of a specific therapy. Here again, as in the experimental animal, the effects are somewhat variable. The injection of alkaline solutions in the human subject produces a prompt stimulation of both the rate and depth of respirations and a rise of blood pressure. The stimulatory effect is more marked when the blood pressure is relatively low. It has been definitely established that the beneficial effects are not due to the increased volume added to the circulation as the addition of as little as 40 cc. of 5 per cent solution of sodium bicarbonate may suffice to double the blood pressure, and bring a patient from semi-consciousness to a state of complete consciousness. Our studies showed no direct evidence of blood dilution from the withdrawal of tissue fluids to blood.

In moderately severe shock, the blood pres-

sure rise may begin to taper off after from fifteen minutes to one-half hour, whereas in less serious cases the rise of blood pressure may be maintained without any appreciable decrease until a normal level is reached. In extreme cases, however, the beneficial effects seem to be fairly transient in character, precisely similar in this respect to the findings in the experimental animal. Clinically in three severe traumatic cases where alkaline therapy was used, we are firmly convinced that a fatal outcome was prevented by the long-continued administration of alkali intravenously. In one such case blood transfusion produced no appreciable benefit, and the blood pressure reached a seriously low level less than one-half hour after a 500 cc. transfusion of whole blood had been given. The blood pressure continued to fall until a critical level was reached. The blood pressure returned and was maintained at a satisfactory level by the administration of alkali over a period of forty-eight hours. (See Cases 1 and 2.) A third case where alkali was administered over a similar interval of time survived three days and then succumbed to gas gangrene. The blood pressure during this time remained at an essentially normal level until the terminal fall. (See Case 4.)

In a recent case of severe traumatic shock we combined alkali intravenously with CO₂ and oxygen inhalations using a mixture of 5 per cent CO₂ and 95 per cent oxygen. The combination gave a much better clinical response, elevation of blood pressure, improved color, etc., than either one given alone. The inhalations were given for five minutes at a time and then stopped for five minutes. This procedure was maintained for about three hours. At the end of this time the patient's blood pressure had risen from 40 to 90 mm. In this case it is particularly significant that the patient's blood pressure had been at a low level of 40 to 50 some time prior to the onset of treatment and his condition was extremely critical when seen. Alkali treatment was continued for almost two days. The blood pressure reached and maintained a satisfactory level. The patient sustained several fractured ribs and died on the fourth day from pneumonia (verified by post mortem).

In the beginning of our experimental work we used sodium carbonate solution intravenously. In some instances an unfavorable reaction was encountered with nausea, vomiting, and in one or two instances temporary interference with respiration. In each case this occurred when alkali was given rapidly. No such deleterious effect, however, was encountered with sodium bicarbonate, even when administered rapidly. For this reason, in all the later cases sodium bicarbonate was given. The effects as judged by blood chemistry studies are identical in both instances. We noted in the human

series, just as in the experimental animal that the addition of alkali and stimulation of the various vital centers was without avail in very late cases of shock, as only a temporary benefit resulted. In these cases the elapsed time was so great before treatment was instituted, that the vital centers were apparently incapable of response as the respiratory and vasomotor center no longer reacted to a stimulus quite adequate for undamaged tissue cells.

We have also noted in giving alkali as a routine, postoperatively, that convalescence has been much smoother. The patient regains consciousness more rapidly, peripheral circulation is greatly improved, and there has been much less postoperative nausea and vomiting. In several instances patients voluntarily remarked in regard to the absence of nausea and vomiting which they had always experienced after anesthesia. These patients had no previous knowledge of the fact that they had received alkaline therapy. One such patient, who had been seriously ill following anesthesia on several occasions was at a loss to understand the absence of nausea following her last operation. In Case 7 where an amputation of the leg at mid-thigh was begun under ether and without a tourniquet the patient's blood pressure early fell to a critical level. The incision had just been made in the skin and it was noted that there was no free bleeding. After the administration of 40 cc of sodium bicarbonate the blood pressure rose from 50 to 90, and the incised skin wound began to bleed freely. The operation was finished without further fall of blood pressure. The patient returned to the ward in good condition and showed no further evidences of either primary or delayed shock. Chemical studies have shown that in the severe traumatic shock cases a marked acidosis occurs similar to that found in the experimental animal. Here again the fall in blood pressure parallels the fall in the alkali reserve. It has been definitely proved that the addition of alkali restores blood gases and blood chemistry to normal.

DISCUSSION

From a consideration of the experimental observations, it may be readily appreciated that both mechanical and chemical factors are involved in the production of traumatic and hemorrhagic shock. The most important mechanical factor is the loss of effective blood volume, either externally, locally at the site of injury, or by redistribution. This latter factor is extremely important in traumatic shock where the vital centers (particularly the respiratory and cardiovascular centers) are depressed apparently by the presence of a toxic substance liberated at the site of trauma. The immediate result of such blood loss is an impairment in the efficiency of the entire circulation which eventually produces

chemical and more serious mechanical changes. If no effective treatment is instituted at this point further impairment in efficiency and depression of vital centers occur, and a vicious cycle is thus established. Diminished activity of the respiratory center produces further mechanical impairment of the circulation in the following way. As the respirations become shallower the intrapleural pressure is rendered less negative. The decrease of negative pressure interferes with the return flow of blood to the heart. As a consequence, blood tends to collect in the abdominal viscera and large venous reservoirs. A vicious cycle is soon established in a relatively simple mechanical way, i.e., less blood being available to the heart the blood pressure gradually falls in spite of constriction of the peripheral vessels. As a result of the continued low blood pressure and the constricted vessels, normal oxygen exchange in the peripheral tissues is seriously interfered with. A continuation of these alterations of normal physiology favors the production of acidosis.¹²

There is already considerable evidence relative to the importance of the deleterious effect of prolonged sensory stimuli as a contributory factor in traumatic shock. Cannon has recently discussed this matter completely.⁹ It is a noteworthy fact that in producing a series of traumas, each separate blow is followed by alterations of respirations and a marked drop in blood pressure. As the depth of shock increases, spontaneous recovery is progressively diminished, until eventually no adequate response on the part of the animal toward restoration of the blood pressure occurs. This mechanism leads to increased fluid loss and eventual exhaustion of higher centers.

In primary or early shock such as that produced by acute hemorrhage, no acidosis occurs if the animal dies promptly, or is adequately treated by infusion or transfusion. In secondary or prolonged shock produced by inadequately treated acute hemorrhage, by slow hemorrhage or by traumatization, not only is there a loss of circulating blood volume, but the acid base balance undergoes a striking change toward the acid side. It is our belief that toxic substances liberated at the site of injury depress the higher centers and reduce the alkali reserve. Acidosis can be corrected and the animal's physical condition improved by bicarbonate therapy alone.

Dehydration can be corrected by the administration of suitable fluids. Some cases in deep or prolonged shock are found irresponsive to any type of treatment, apparently due to loss of cellular reactivity from long-continued anoxemia.

Although the effects of loss of blood volume and the effects of the acidotic changes in relation to shock will be discussed separately, they

are intimately associated one with the other in such a way that the occurrence of one foretells the onset of the other. Since much of the recent work on shock has been focused on circulating blood volume loss as the principal factor in the development of a shock-like state this theory will be discussed first. The relationship between loss of blood volume and anhydremia and shock is illustrated in the above data. In cases of acute hemorrhage where death occurs rapidly or in animals quickly restored to normal through restoration of blood volume by transfusion no measurable loss of tissue fluids occurred. In acute hemorrhage where death was slow or where restoration toward normal was incomplete in slow hemorrhage and in traumatic shock, fluid was lost from the cardiovascular system slowly, and replaced more or less for a time by tissue fluids. Blood concentration soon commenced especially in the peripheral vessels where circulation was almost at a standstill and where anoxemia was well developed. Acarbia with loss of alkali reserve was then well advanced, and as further concentration occurred more anoxic acidosis appeared. A state of anhydremia set in. Acarbia and acidosis encouraged further vascular stasis by loss of cardiovascular tonus and by dilatation of small vessels and acarbia was increased due to slower oxidation. A valuable cardiorespiratory stimulant was thus lost while the acidosis continued to increase. The low alkali reserve was a direct result of loss of base in the urine, complete reduction of oxyhemoglobin in anoxic tissues (by virtue of which only a relatively small amount of base can be held) and to a relative loss of free base by the increase in acid content of the body cells. The animal was not only predisposed to greater acarbia but to increased lack of tonus in the cardiovascular and sympathetic nervous systems. Permeability of vessel walls is increased by anoxemia largely destroying their function as a selective membrane and allowing them to act as a filter with loss of serum containing essential salts and proteins. The concentration of acid salts in the tissues encouraged a further loss of fluid. Increasing viscosity gradually slowed the blood flow. Such changes were most marked in anoxic or injured areas. In summary it is apparent that loss of circulating blood volume may be followed by a train of events which still further decreases blood volume, slows circulation and produces marked chemical changes in the tissues, which are still further detrimental in that they produce a vicious cycle of anhydremia and anoxic acidosis with progressive circulatory failure.^{12, 13}

Acidosis has been found to bear a somewhat variable relation to shock and would appear to be of greater importance as a factor in shock than anhydremia. With gross loss of blood (as in suddenly fatal hemorrhage) the vital centers

rapidly become inactive as a result of generalized anoxemia. In cases where blood volume was quickly restored by whole blood transfusion or infusion of gum acacia there was no evidence of acidosis. In animals where the blood pressure and the blood flow remained at a satisfactory level there was no tendency toward acidosis. In cases where vascular function was only partially restored by treatment, signs of circulatory stasis developed. The tissues became cyanotic with marked anoxemia and dilation of the peripheral vessels. Such cases developed definite changes in blood chemistry within an hour from the onset. Eventually a point was reached where the blood pressure fell rapidly, of its own accord without additional hemorrhage. The critical point had been reached. The arterial CO₂ content and combining power was now extremely low. Arterial O₂ content was often diminished by blood dilution as evidenced by blood counts and hematocrit readings, but it was frequently unaffected or even increased apparently because of low O₂ utilization in the periphery, the result of circulatory stasis. O₂ capacity was nearly always lowered by blood dilution. pH and acid base estimations indicated a true acidosis. The simple state of primary shock was merging into a state of secondary shock with anoxemia and increasing acidosis. Stasis in the peripheral tissues with resultant oxygen lack favored the accumulation of acid products of cellular metabolism such as lactic and oxypyruvic acid. Although these acids may dilate small vessels and increase tissue oxygen utilization they increase the stasis already present. The total available oxygen in local tissues is thus greatly reduced as a result of the diminished blood flow. As the anoxic acidosis increased, acid salts such as chlorides and phosphates entered the cells while the alkalis, chiefly sodium and potassium, were excreted. The accumulation of the retained acid substances required neutralization by alkali. By this means available alkali for CO₂ carriage was further reduced and CO₂ for central stimulation diminished. In areas of stasis oxyhemoglobin was totally reduced and rendered relatively incompetent as a reservoir for base so that lessened CO₂ carriage by the blood stream resulted. Since the tonus of both cardiorespiratory and vasomotor systems is normally maintained by CO₂ (acting as a primary cell stimulant in the presence of sufficient oxygen to maintain cell viability) loss of CO₂ results in a gradual depression and lack of tonus in the centers. Another effect of the increasing tissue acidosis is the withdrawal of water from the blood stream to the acid-laden cells. NPN, urea, sugar and cholesterol have all been shown to increase in the blood in an effort to maintain normal blood fluid content. Dehydration and anhydremia may become intense still further increasing viscosity and stasis. While the mere loss of blood volume produces reflex mechanical changes in the body (as seen in acute hem

orrhage before anoxemia is prolonged and the factor of acidosis begins to play a part), slow hemorrhage produces an increasing anoxemia and a non-gaseous acidosis with anhydremia. This is followed by the vicious cycle of increasing anoxemic and anhydremic acidosis, as shock becomes more profound. This is obviously very different from the primary stage of shock, and is comparable to the similar late acidotic stage of traumatic shock^{13 14 15 16}

The data on traumatic shock show that primary shock often seen with trauma, is unassociated with any chemical changes in the blood. It is only in the more severe degrees of secondary shock that significant alterations of blood chemistry occur. By the time the critical point had been reached (i.e., where there is no adequate blood pressure response following trauma), chemical changes in the blood indicating definite acidosis had occurred and became more pronounced as the blood pressure continued to fall. Simultaneously blood concentration became noticeable in hematocrit, blood count, and oxygen capacity readings. There were now two additional features not found in the state of primary shock, namely, acidosis and anhydremia. The fall in blood pressure led to a decreased blood flow and to increased tissue anoxemia with associated chemical changes. A true non-gaseous acidosis had become established similar to that noted in the slow hemorrhage group. The increase in cellular acids drew fluids to cells (a phenomena well known in chloride retention), while fluids were also lost from the blood stream because of capillary damage following anoxemia, and a general loss of blood fluids was added to stasis, anoxemia, and acidosis. In traumatic shock, however, conditions tending toward anhydremic acidosis were still further favored at the site of trauma by local rupture of vessels and acute interstitial hemorrhage. The marked swelling at the site of injury as postulated so strongly by others, represented not only a loss of fluid to tissues by the acidotic changes outlined above, but also direct loss of blood by injury, and loss of circulating fluids in the form of edema (due to a markedly increased permeability of the vessel walls in the injured areas). In such tissues the vicious cycle of diminished circulation, anoxemia, acidosis and edema occurred with an increasing loss of fluid from the blood stream. In certain cases the amount of fluid lost at the traumatized area was probably sufficient in itself to produce reduction in blood pressure and blood flow, anoxemia, anhydremia and acidosis. The chemical changes of shock being thus established, the final stages of traumatic shock were similar to those of hemorrhagic shock in that restoration of volume was rarely sufficient to restore vitality, and death occurred in profound acidosis with respiratory and circulatory collapse, even though fluid volume was restored to the cardiovascular system. In traumatic shock, however,

there were two main factors to account for the anoxemic acidosis. There was the general acidotic reaction from slowed blood flow and anoxemia, secondly, there was severe local stasis together with blood fluid loss presumably sufficient in itself to cause a general depression of circulation.

A brief study of the effects of alkali treatment in shock compared with the effects of other treatments, supports the above concepts of the physiological and biochemical changes in shock, and presents an excellent therapeutic test of the theoretical considerations.

When in either traumatic or hemorrhagic shock, the blood pressure reached the critical point, alkaline therapy alone, or with extra fluid, produced striking improvement in the shocked animal. The addition of CO₂ (supplied to acarbic tissues by the intravenous administration of sodium bicarbonate) stimulated the cardiovascular system, acting especially as a vasopressor agent, the respiratory center seemed to be specifically stimulated, the improvement in respiratory exchange was a constant feature. The increasing negative intrapleural pressure improved the return of blood to the heart and cardiac function. The added alkali formed a reservoir for CO₂ and for the acid products produced by trauma and anoxemia. The alkali diminished acidosis and prevented further acidotic anhydremia, blood concentration, and viscosity. The improvements in the respiration and circulation thus brought about, hastened oxygenation, relieved anoxemic and anhydremic acidosis, and restored cell vitality and reactivity. Hemoglobin once oxygenated, became automatically a much better storehouse for alkali offered the body. The reactivation of cells was very important, for it allowed more free response to the various stimulants presented. CO₂, for example, though a respiratory stimulant, soon becomes ineffective if oxygen is not available. Furthermore, the relief of anoxemia diminished escape of cardiovascular fluids to tissues. Recent literature also states that alkaline media as opposed to acid, increases cardiovascular tonus, and tends to slow the heart rate, increases cardiac output, and improves the circulation generally.¹⁷ NaHCO₃ in 5 per cent concentration did not appreciably dilute the blood by the withdrawal of tissue fluids.

As a result of our experimental studies we feel certain that a great deal of hemolysis occurs in traumatic shock, hence considerable hemoglobin is present in the serum in simple solution. We have also demonstrated that the animal's own hemolyzed blood exerts a depressant action on the higher centers in shock. It is extremely likely that other tissue products acid in character absorbed from the injured area still further depress the centers and deplete the available base through buffering action. When base is no longer available,

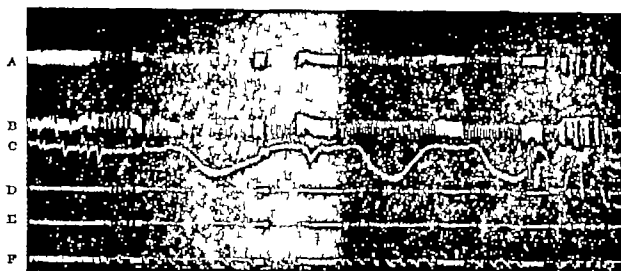


FIGURE V

- A. Abdominal excursions
B. Thoracic excursions
C. Blood pressure
D and E. Intrapleural pressure
F. Time intervals

This record shows the depressant effect produced by the injection of laked blood and muscle tissue washings. Note the sharp fall of blood pressure and diminished respirations accom-

panying each intravenous injection. The solution was injected directly into the femoral vein.



FIGURE VI

- A. Time intervals in tenths of a second
B. Thoracic excursions
C. Blood pressure
D and E. Intrapleural pressure
F. Respiratory

This record shows the fatal effect of injecting 5 cc. of laked blood in a shocked animal. Note that there was complete failure of the respiratory center the heart continuing to beat for a time after respirations had ceased. At F respiratory

center had temporarily ceased to function after the injection of a small amount of laked blood but artificial respiration and the injection of 50 cc. of saline prevented a fatal outcome.

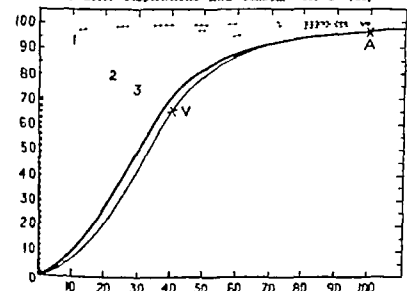


Diagram to Illustrate the Behavior of Solutions of Hemoglobin and of Blood under Different Conditions. Abscissa: Tension of oxygen in mm. Hg. Ordinate: Percentage saturation of hemoglobin with oxygen.

Dotted lines: Hemoglobin solutions—1 Room temperature and no CO_2 tension; 2 Body temperature and no CO_2 tension; 3 Body temperature and 20 mm CO_2 tension.—After Barcroft.

Continuous lines: Blood. Thick line—In presence of constant pressure of 40 mm. CO_2 . Thin line—Dissociation curve in body when disappearance of oxygen is accompanied by increase of CO_2 pressure, which facilitates dissociation of oxyhemoglobin.—After Haldane.

A=Arterial point; V=Venous point

or tissue spaces, a serious degree of acidosis develops. The importance of carbon dioxide in the disassociation of a simple hemoglobin solution is well known. (See Diagram) The importance of sodium bicarbonate in the disassociation of oxyhemoglobin is thus apparent. The extent of disassociation of oxyhemoglobin depends not only on CO_2 tension and H^+ (ion) concentration, but also on the oxygen tension, the temperature, concentration of hemoglobin, and electrolyte content. As a result of increased CO_2 tension, oxyhemoglobin gives off more oxygen at any given oxygen tension in the tissues. The importance of maintaining sufficient CO_2 is thus self-evident and this is best supplied in the normal physiologic form i.e. as bicarbonate, since bicarbonate combines with other acid substances liberating CO_2 from the weak acid H_2CO_3 . This CO_2 is then available to the tissues and results in more complete liberation of oxygen at any given tension. It also stimulates the respiratory and cardiac centers to greater activity, and thus increase of function results in mechanical improvement of the entire circula-

tion The vicious cycle is effectively broken. From our experience with human cases the great importance of frequent administrations of alkali cannot be too strongly emphasized. We have found that acidosis occurs with great rapidity in cases of profound shock, particularly once the vicious cycle has become established. As these acid products are absorbed into the circulation the available alkali is soon exhausted and acidosis with all its chain of damaging effects ensues. These acid products can only be slowly eliminated through the kidneys as detoxification occurs in liver, spleen, etc. The CO_2 liberated from bicarbonate is soon carried out through the lungs, therefore additional bicarbonate must be continually supplied to compensate for that effectively removed from the circulation by buffering of salts and loss of carbon dioxide from the lungs.

Blood and gum acacia both had some features valuable in shock. They both may be used to add volume to a depleted circulatory system and this addition is fairly stable. They both may be used to dilute too concentrated blood. Blood itself has the additional value of adding hemoglobin to the circulation which if oxygenated and utilized will be of aid in shock. Neither, however, had a specific stimulatory effect on circulation or respiration and a substance is necessary such as the alkali carbonates, capable of affecting circulation in a twofold manner, stimulating respiration, and correcting chemical change, blood volume and viscosity, thus encouraging the swing toward normal physiological function.

Results of CO_2 inhalation therapy in shock impress one initially as satisfactory. Actually this improvement is short-lived. The increased CO_2 content depended on the raised alveolar CO_2 . Withdrawal of CO_2 lowered alveolar CO_2 and consequently lowered the blood CO_2 content almost immediately. The cells as noted above had little enough alkali available for CO_2 storage. CO_2 combining power which rose with the CO_2 content, immediately fell too when the inhalations were discontinued. If CO_2 inhalations were continued oxidation was retarded, and tissue anoxemia was increased even while the respiratory center was stimulated and respirations were at a peak, for by increased alveolar CO_2 content by raised alveolar CO_2 tension, alkali was gradually drawn from the tissues until available alkali reserve was diminished, and CO_2 content and combining power fell parallel to a rapidly dropping blood pressure. Inhalation treatment in shock also fails to provide the needed blood volume and correct the increased concentration and viscosity of the blood.

Morphia given in suitable doses in early shock tends to minimize or delay the onset of shock by decreasing painful sensory stimuli. In this way the tonus of the vital centers is main-

tained. We particularly wish to emphasize the inherent danger of large doses of morphia in the treatment of shock, especially in the later stages. In such cases morphia merely diminishes the function of vital centers already seriously depressed. The deleterious effect far outweighs the benefits as recovery may be retarded or altogether prevented by the lack of responsiveness of the vital centers.

As a result of our experimental studies we also wish to point out the grave consequences of overadministration of fluids in severe traumatic and hemorrhagic shock. Large doses of saline may produce irreparable damage. The fluid dilutes the circulating blood and thereby diminishes the available oxygen per unit volume, thus tending to increase an already serious oxygen lack. The excessive fluid may also filter rapidly out through the pulmonary tissues due to its relatively low protein content and the increased permeability of the lung capillaries. We have repeatedly noted extensive pulmonary edema in the experimental animal as a result of using a large volume of saline in late shock. This identical finding has also been noted in clinical cases.

Heat is also important as it tends to improve and maintain normal physiological processes. Effective oxygenation in the peripheral tissues largely depends upon the maintenance of a satisfactory body temperature. Loss of heat predisposes the animal to all the hazards of depression of vital body processes.

Biochemical studies contraindicate addition of chloride ions in severe shock or other conditions where dehydration is present, since there is already a relative excess of these ions. Saline introduced by means other than intravenously is not so likely to be seriously detrimental in these respects, but is of no more value in the restoration of blood volume and blood flow or in the reduction of anhydremia, anoxemia or acidosis. In shock where the blood viscosity is increased blood dilution may be indicated, but it would be far better to use a fluid capable of correcting the altered blood chemistry at the same time, and one not so liable to predispose the body toward further anoxic acidosis.

As outlined above, it appears that loss of circulating blood volume, anhydremia, and anoxic acidosis, account for the shock of hemorrhage. In many cases of traumatic shock even after severe injury, shock is gradual in onset, and might be accounted for by a gradual loss of fluid to the injured area. Other cases lapse immediately into primary shock, a collapse of circulation apparently neurogenic in origin, and because of a prolongation of this state have an additional anoxic factor added to such loss of fluid as occurs to the injured area. The neurogenic theory has been stressed especially as a factor in bringing about sudden and early depression of circulation due to cutting down of

peripheral circulation by sympathetic overaction and hyperadrenalism.⁹ This occurrence might set up the cycle of anhydremia and anoxemia with increasing circulatory stasis and lack of peripheral circulation until the full cycle of anoxemia and anhydremic acidosis existed. There are, however, many instances of shock produced without any conceivable neurogenic element, the nerve structures to the part having been sectioned, so that liberation of toxic products from the injured tissues, have been thought to cause both early and late shock by depression of circulation and loss of circulating blood volume. Histamine and adenosine have been mentioned in this regard especially. It is conceivable that in the later stages of shock these substances do play a part and might arise from the injured part or from the anoxic tissues.¹⁰

Our experiments confirm the observation that in traumatic shock the blocking of communication between the injured site and the general circulation prevents or minimizes shock. Finally a change in the blood or muscle hemoglobin with hemolysis and the formation of other depressant or toxic products in the injured area we believe act as toxic agents shown by the above results and by previously published data. It was significant that our blood samples carefully taken showed an increasing hemolysis as shock progressed. Recent work has shown the importance of alterations of pH in relation to the antigenic properties of serum albumin marked changes resulting from the chemical manipulations involved in the reversal process.¹¹ This work strongly suggests the possibility of certain alkalis acting as detoxifying agents. Such reactions might well explain the favorable response noted in severely traumatized animals or in man following the injection of alkali either continuously or at regular intervals over a considerable period of time. This phase of the problem warrants further investigation.

SUMMARY

As a result of our experimental and clinical investigation we have been particularly impressed by the fact that no one theory suffices to explain all of the observed phenomena encountered in traumatic shock. There are numerous factors, each contributing its component part. Most important of these are depression of the vital centers, blood volume loss and the vicious cycle of anoxic acidosis. The resultant mechanical and chemical changes are of extreme importance.

From the experimental data obtained it has been found possible to differentiate traumatic and hemorrhagic shock. Traumatic shock is characterized by increasing acidosis and concentration of the blood (a relative increase of cells over serum as measured by hematocrit de-

termination). These findings are in sharp contrast to those of acute hemorrhagic shock where no acidosis develops (the blood may show dilution with relative increase of serum over cells) and the effects are entirely due to loss of circulating blood volume. In slow hemorrhage, the findings more nearly resemble those of traumatic shock. Such cases usually show depression of the higher centers, increasing tissue anoxemia, and acidosis.

The importance of physical changes in both traumatic and hemorrhagic shock has been briefly discussed. Blood volume loss in both instances plays a significant rôle. The effectiveness of the peripheral circulation is steadily diminished as the blood volume decreases. Interference with the function of the vital centers rapidly ensues. Depression of the respiratory center decreases the chest and abdominal excursions resulting in a diminution of the normal negative intrapleural pressure. The return of blood to the heart is diminished as blood collects in the abdominal viscera and large venous radicals and smaller peripheral vessels. The diminished oxygen exchange in the periphery resulting from the altered mechanics of the circulation tends to create a vicious cycle of increasing anoxic acidosis, the vital centers becoming still further depressed.

The depressant and toxic effects of laked blood and traumatized muscle on the higher centers have been demonstrated in the experimental animal. Hemolysis has been shown to be a consistent finding in traumatic shock.

It is of the utmost importance to differentiate traumatic and hemorrhagic shock in relation to treatment. Cases of acute hemorrhagic shock are best treated by replacement of the lost volume with whole blood. Less severe cases respond satisfactorily to intravenous saline, glucose, or gum acacia, and require no other treatment. A different type of treatment is indicated in traumatic shock or slow hemorrhagic shock. Such cases, we believe, are best treated by intravenous alkali or a combination of alkali and whole blood. Even severe cases of traumatic shock respond well to intravenous alkali if given in sufficient quantities over a suitable period of time. Such alkaline solutions not only prevent acidosis but serve as direct cell stimulants to the respiratory and other vital centers. Alkali increases the rate of disassociation of oxy hemoglobin and improves the peripheral blood flow. In certain cases supplementary inhalations of CO₂ and oxygen may be indicated both for mechanical and chemical effects.

The damaging effects of overdosage of morphine have been pointed out and the dangers inherent in overadministration of such fluids as saline or glucose clearly demonstrated in the experimental animal.

CASE 1

T S, motorcycle police officer, aged twenty five years, November 4, 1933

P.I Patient is said to have been traveling about seventy five miles per hour on a motorcycle when he collided with an automobile which was making a U turn. He was brought to the hospital in a police ambulance

P.E Well developed and nourished adult white man conscious and rational in profound surgical shock. Profuse hemorrhage from compound fracture of the skull. Multiple compound fractures of the right lower leg. Multiple fractures of the right foot, compounded on dorsum. No circulation in the foot distal to the metatarsal heads. Toes cold and pale. Extensive laceration inner side of lower leg two inches above malleolus extending up the leg a distance of three inches. All muscles and tendons had been cut to the bone, but posterior tibial artery vein and nerve were intact. Compound fracture tibia and fibula junction the upper and middle third. Two compound lacerations. Multiple contusions and abrasions left leg and back. Blood pressure was 60 systolic and 20 diastolic. Extremities cold and clammy. Blood transfusion 500 cc whole blood. Blood pressure raised to 110. The skin edges were excised, cut disinfected with iodine and a Kirschner wire put through the os calcis. By this time the patient's blood pressure had fallen to 70 and intravenous sodium bicarbonate solution was started by means of continuous drip. When the blood pressure reached 125, it continued at that level. At the end of the operation, which was very minor in character and done under gas oxygen, the patient was given a therapeutic dose of antitetanic and antigas serum. About sixteen hours later his condition had improved considerably and a débridement was done under gas oxygen. Many of the loose fragments of bone and devitalized tissue were trimmed away, and multiple incisions were made to allow for Dakin's tubes.

November 5 The patient was semicomatose and rather irrational. There was extensive swelling of the right thigh. Because of skull injury and his mental condition, it was deemed advisable to call a neurologic consultant who felt that prognosis was very poor for recovery.

November 6 The patient was still irrational, pulse very rapid, intravenous alkali still being administered. Condition seemed slightly improved.

November 7 Patient's temperature lower, condition obviously improved. Blood pressure remains at normal level, RBC now $2\frac{1}{2}$ million. Five hundred cc of whole blood given because of low RBC and hemoglobin. Temperature dropped to 101° , pulse slowing.

November 9 The patient seemed definitely improved, more rational, taking food by mouth, no evidence of infection in the wounds of the leg. Intravenous alkali discontinued.

November 11 Patient responded to questions normally, temperature is now about $100\frac{1}{2}^{\circ}$ although previously it was 104° , pulse perfectly regular.

The x-rays showed additional fractures as follows: three fractures of the shaft of the right femur with large loose fragment about four inches in length. A fracture of the neck of the right femur, and fractures of all of the tarsal bones of the foot with the exception of the phalanges. Compression fracture of the 1st lumbar vertebra.

Summary This man made an uneventful recovery from his shock and is now walking about with the aid of a long caliper brace.

CASE 2

J B, aged twenty-two years, February 12, 1934

Consultation made with Dr R S

This man was in an automobile accident. The car skidded on some ice and crashed into a tree. The patient was taken to the Newton Hospital. He apparently sustained a compound fracture of the right humerus and multiple contusions and abrasions. There was a question of internal injuries. The patient entered the hospital at 1 05 on February 12, 1934. He was given glucose and saline intravenously during the night. His blood pressure which was around 90 gradually fell until it reached about 40. He apparently was in a state of severe shock. Adrenalin and caffeine were given him several times. Blood grouping was being done. The senior author saw the patient about 7 30 and he was in a state of profound shock. He was apathetic and somewhat comatose. He was markedly pale and there was a slight bluish discoloration of the ears and lips. Respirations were extremely shallow. Blood pressure was 40/? The pulse could scarcely be felt at the wrist and the patient could not be roused sufficiently to respond intelligently to questions. He was given 50 cc of acid carbonate, i.e., bicarbonate intravenously. This resulted in a prompt increase in the depth of respirations and a definite slowing of the pulse rate. He began to move and speak intelligently. He responded to questions. Blood pressure at the end of the injection was about 70/40. The veins on the surface became slightly distended. He began to complain of pain in the right side of his abdomen. He was given 40 cc of 10 per cent sodium carbonate at a rather rapid rate intravenously. This resulted in vomiting and the patient apparently regurgitated some of the vomitus and became somewhat cyanosed. The eyeballs rolled upward and it was necessary to introduce a throat stick gag to release the spasm of the jaw and allow breathing to be resumed. Respirations then became deep and regular. His color improved. Blood pressure following the injection was 100/60. The skin was warm. The surface veins were distended. His general condition greatly improved. Instructions were left to repeat the alkaline injections every $\frac{1}{2}$ to 1 hour as indicated by the blood pressure readings. I saw the patient again about an hour and a half later and his blood pressure was 85/40. Only one ampule was given contrary to directions left for treatment of patient. Several ampules of adrenalin and caffeine were given. At 10 50 he was seen by a surgeon consultant who diagnosed internal hemorrhage and advised opening the abdomen. He was taken to the operating room, and given 600 cc of whole blood and the abdomen was opened. A long operation was done under gas-oxygen anesthesia. The entire abdominal cavity was explored. Only a small amount of hemorrhage was found along the anterior abdominal wall and over the bladder surface. There was no injury to the intestines or viscera. His condition became very grave immediately following the operation. I saw the patient again about 4 30 in the afternoon. At this time he was comatose and each respiration was accompanied by a gurgling noise in the chest. His blood pressure was 110/80. He was given three ampules more of alkaline solution and this resulted in the elevation of the blood pressure to 120. The pulse improved in quality. Respirations became somewhat deeper. On the supposition that he was suffering from pulmonary edema, atropine was given. This did not materially help him and the patient died at 5 30 from acute pulmonary edema.

CASE 3

E. N. August 21 1934

P.I. The patient states that he was perfectly well until shortly before admission to the hospital when he was run over by a moving crane, sustaining injuries to his left elbow and left knee. He was unable to walk following this and the pain was very severe. He was immediately brought to the Accident Floor in an ambulance and admitted.

O.O. Pain in left knee and elbow

P.E. Well-developed and nourished adult white man cooperative and alert in slight surgical shock. Extremities Two four inch lacerations on anterior aspect of left knee through the skin and deep structures into the joint. Wounds very dirty Reflexes negative. Motions of the knee very painful and associated with exudation of joint fluid. No signs of fracture. Skin over thigh brownish in color. Thigh tender throughout. Four inch laceration on anterior aspect of left elbow involving skin and deep structures. Wound very dirty

Operation Gas oxygen ether anesthesia. Operative field was prepared with soap and water, ether iodine and alcohol. Wounds scrubbed with soap and water for fifteen minutes, then ether iodine and alcohol. Wounds debrided. Lacerations of superficial and deep structures of elbow were repaired, rubber dam drain inserted and wound closed loosely. The knee joint was marsupialized. There was considerable bleeding from the upper thigh. Upon investigation it was found that the skin was completely separated from the underlying structures. There was found to be extensive maceration and tearing of all the deep structures of the thigh. The bleeding vessels were tied. Several stab wounds were made and tubes inserted for Dakin's irrigations of the wound. Patient given therapeutic dose of gas bacillus serum and prophylactic dose A.T.S. Patient in severe shock on completion of operation. Given transfusion 500 cc. by citrate method. The blood pressure was maintained at about 100 and showed no tendency to fall. The patient was returned to the ward in good condition.

Upon his return to the ward the leg was put in apparatus to enable patient to maintain motion to the knee.

On the following day there was a very foul discharge of serosanguineous fluid from the site of the elbow laceration. The patient's general condition was fairly satisfactory.

On the evening of August 23 the patient lapsed into a state of collapse. The blood pressure gradually fell in spite of large amounts of saline and glucose intravenously. Condition grew progressively worse. The patient died at 6 15 A.M. August 24 1934.

No alkali was given at any time during the treatment.

Diagnosis Laceration of left knee extending into the joint. Maceration of thigh muscles. Laceration of the superficial and deep structures of the left elbow. Question of gas bacillus infection.

Postmortem examination showed extensive gas bacillus infection in the left elbow none in the thigh.

Notes This case is almost identical with Case 6 except that the injuries were more severe in the latter case. The man treated with alkali made an uneventful recovery (Case 6).

CASE 4

J. H., aged fifty four years September 11, 1933

P.I. This fifty four year old white man was admitted following an automobile accident.

P.E. Examination reveals an extensive laceration of the right anterior thigh and fractures of the shaft of the right femur with marked displacement of the fragments. The laceration is approximately twelve inches long and six inches broad exposing raw muscle fibers. Beneath the muscle can be seen the laterally and anteriorly displaced upper fragment of the fractured femur approximately at the junction of the upper 2/3 with the lower 1/3. X-ray at the time of entry revealed a comminuted transverse fracture of the right femur at the junction of the upper 2/3 with the lower 1/3 the upper fragment being laterally and anteriorly displaced the left femur the lower fragment posteriorly displaced. There is a comminuted fracture of about one inch in size. The patient also complains of some pain in the left shaft which reveals slight crepitus on palpation.

Operation The patient was taken at once to the operating floor but he began to fall rapidly the pulse going from 80 at entrance to a rapid rate, and the blood pressure falling steadily. Therefore, the patient was sent immediately to the Shock Room where routine shock treatment was instituted. By mid-afternoon of the same day the condition of the patient was apparently worse and the senior author advised the use of intravenous sodium carbonate in a 5 per cent solution. Blood samples were taken at this time, indicating that there was an acidosis present. Under the administration of intravenous sodium carbonate during the night the blood picture of the patient changed to that of a slight alkalosis and patient's blood pressure gradually rose from 40/30 at the time of beginning of treatment to 88/50 later in the evening. A therapeutic dose of A.T.S. and antigas serum was given.

September 14 The following day the patient's condition was apparently improved blood pressure being 78 color good pulse being still rapid however it was felt inadvisable to manipulate the leg due to the presence of some persistent shock and the pillow and sides originally applied were left on. On the third day the condition of the patient was about the same. A blood transfusion was advised 350 cc. of citrated blood was administered. On the fourth day the condition of the patient apparently improved though he was somewhat delirious. Blood pressure was 108 pulse about 100. On this day due to a suspicious odor of the wound in spite of a negative x-ray for gas in the tissues 160 cc. of antigas serum was administered intravenously.

September 18 The patient's condition has now become more precarious than previously. While the T.P.R. are satisfactory the patient apparently has no resistance and that coupled with the purulent infection of the wound of the thigh, seems to be carrying him rapidly toward exodus. Two days ago two more doses of antigas serum were administered. The culture of the wound taken on the second day had been pronounced positive for gas bacillus. However there is no crepitus around the wound.

At that time sodium bicarbonate was discontinued as the patient's condition seemed to be satisfactory. At no time did he have an alkaline urine.

September 19 The patient was pronounced dead at 2 30 A.M.

Detail notes taken on ward September 11 1933

Time 4 P.M. Compound comminuted fracture left femur—in extreme shock and sinking lower eyes rolled up hardly breathing pulseless 1130 B.P. 73/60 white cold clammy CO. c.p.—38 Patient has had 300 cc. glucose warmth hot drinks while able to drink.

At 4 20 P M 150 cc of 5 per cent NaHCO_3 given slowly (two minutes) A few seconds after bicarbonate was commenced the patient opened his eyes, began to complain of pain in his leg and chest, looked better color returning, pulse became palpable at wrist, chest seen to move (this seen before the other signs of improvement) By the time 150 cc. NaHCO_3 had been given, the patient was much better and his BP was 60/40 Pulse 110, very much stronger CO_2 c p 50

One hour after bicarbonate was given the patient still looks well is much improved—still very thirsty, however Pulse 120 130 BP 55 60/40 CO_2 c p 50 Intravenous 5 per cent Na CO_3 commenced

At 9 00 P M the patient has had 700 cc 5 per cent H_2CO_3 Still looks well but slightly pale again and drowsy (has had morphine) BP 60 65/40 Pulse 130 CO_2 c p 75

Patient now given 200 cc 10 per cent Na_2CO_3 in about three minutes When 100 cc. had been given, the patient began to look better began to complain of pain in leg again looked much brighter At 200 cc appeared nauseated, pale complained of nausea, then vomited no change in pulse to this point. Patient vomited clear fluid three times in a few seconds, then held breath became slightly blue, veins of face stood out, pulse showed no change BP 130/90 Patient in half minute took breath, looked better BP 100/80 Patient normal in appearance in 2' and in 5' quite normal BP 75/50 CO_2 c p 77 (sample taken 10' after carbonate given) Pulse 100 BP 80/55 at 11 P M

Na CO_3 given by drop all night and in morning CO_2 c p—90 Patient in good condition

NOTE This case illustrates the extreme importance of continuing the administration of alkali even after secondary shock is apparently relieved and suggestion that the depressant effects continue through absorption from the injured area for many days after the original injury As a result of incomplete oxidative processes serious depletion of the alkali reserve eventually occurs with marked acidosis, and eventually death may intervene

CASE 5

J S November 17, 1933

P.I This man was hit by an automobile On admission he could give only his name and residence, and answer questions in monosyllables Is said to have been walking when struck Brought to hospital immediately

P.H Had previous injury to right shoulder July 26

P.E Skin pale and moist, rapid shallow respirations Pulse regular 120 respirations 35 Cuts and abrasions of head Cuts and abrasions of hands Right leg Deformity and abnormal motion in upper one-third Crepitus present Left foot Pale and cold to ankle Heel markedly swollen and crepitus can be elicited Heel flattened and broadened Blood pressure 80/60

At 8 00 a m blood pressure was 90/70 Patient was given alkali intravenously bringing blood pressure from 84/72 to 120/80 More alkali given in p m because of lowered blood pressure

November 18 Lumbar puncture showed pink spinal fluid under 120 mm pressure Under spinal anesthesia the left os calcis was malleted by Dr Cotting and posterior fragment reduced by Kirschner wire traction Mid thigh cast with Kirschner wire incorporated was applied Thomas splint with skin traction to right leg

November 23 Lumbar puncture 200 mm Fifteen

cc removed and pressure down to 140 Condition greatly improved

November 27 Right leg out of traction and in cast

December 23 Pain in left heel T.P.R normal

January 4, 1934 Sepsis around Kirschner wire which was removed

January 19 Wounds are draining and left heel is painful

The left heel continued to drain for several weeks and the patient's condition gradually became worse due to continued absorption from the septic area on the left heel. Numerous incisions were made for drainage

March 23 Amputation of the left leg was made six inches below the knee

The patient was quite improved by amputation and got along extremely well afterwards He was discharged June 17, 1934

NOTE Cases 5 and 7 illustrate the prompt improvement which occurs when intravenous alkali is administered in early or mild shock.

CASE 6

P B, November 22, 1934

P.I This well developed, well nourished male states that several minutes before admission he had parked his car thinking that it had been braked As he was walking on ahead his car ran him down and ran over him He was immediately brought to the B C H. where a severe compound fracture of the left lower leg was treated with emergency pillow and side splints The wound was covered with sterile gauze He was sent to the Shock Room where the patient was transfused with 500 cc of whole blood which was given by indirect method

Operation The patient was then taken to the Operating Room under gas ether anesthesia, a foot long incision was debrided There was found to be a compound fracture at the junction of the middle and lower one-third of the tibia, the distal and proximal fragments protruding through the wound There was extensive muscle injury Wound washed with saline, peroxide, iodine and alcohol Muscles and bone ends were debrided, put in apposition a Lane bone plate was inserted At the end of the operation the patient's blood pressure was 78/40, pulse rate rapid, rather poor in quality He was given two ampules of alkali intravenously This resulted in increased depth of respirations, improved quality, and slowing of the pulse Blood pressure within five minutes had reached 130/80 His general condition appeared to be very much improved Several Dakin's tubes were buried within the wound A posterior splint was applied The wound was Dakinized every hour, nascent oxygen was passed through the wound continuously through Dakin's tubes One thousand cc of 5 per cent glucose was given before leaving the operating floor The patient went to the accident ward where heaters and blankets were given and he was placed in shock position He was given intravenous soda bicarbonate every hour for the first thirty six hours, every four hours for the next twenty four hours and then every six hours until urine became alkaline on the fourth day Alkalies were also given in large dosage by mouth

The patient was given two therapeutic doses of gas serum at time of operation as well as prophylactic dose of A.T.S The wound was left wide open exposed to air, only a fine mosquito netting covering

Three days after operation amfetin was applied to the wound every half hour The wound had stayed clean both in regard to pyogenic infection and gas infection

Diagnosis Compound fracture of both bones at junction of middle and lower third of left leg with avulsion of skin.

Four weeks postoperative temperature now normal. The patient's condition is good. The wound is healing well.

NOTE: This patient's blood pressure remained at a satisfactory level throughout the convalescence. No evidence of secondary or delayed shock developed although there was extensive muscle injury and cultures from the wound during convalescence were positive for gas bacillus.

CASE 7

H. E. W. aged seventy years November 27 1933

Diagnosis Diabetes mellitus Diabetic gangrene of the left foot generalized arteriosclerosis

P.H. The patient was admitted to the hospital June 2, 1929 for carbuncle of the neck. It was incised and drained. He was treated with a diet and insulin and was discharged March 25 1930

P.I. In August, 1933 the patient had pain and tenderness on the lateral side of the fourth left toe. This was followed by ulceration. He was admitted to the hospital November 27 1933. General examination was not important except for generalized arteriosclerosis

P.E. Blood pressure 150/60. Definite gangrenous ulcer fourth left toe. Dorsalis pedis and posterior tibial not felt on left foot without difficulty

Operation On January 23 1934 his left leg was amputated four inches below the knee. He developed a sterile gangrene of the stump and for this reason amputation of the mid-thigh was done on January 30. At the beginning of the operation his blood pressure dropped below 60 and the patient was obviously in considerable shock. Skin flap was made and no bleeding of the skin edges occurred. He was given 40 cc. of sodium bicarbonate (3 grams) intravenously. Blood pressure rose to 120/60. Skin edges began to bleed freely. The operation was concluded without further drop in blood pressure.

Following his return to the ward it remained at 115 to 120/70 and his postoperative convalescence was unusually good.

The patient apparently developed an increasing cardiac failure and finally died March 11 1934

REFERENCES

- 1 Great Britain, Medical Research Committee. Traumatic toxemia as a factor in shock. Reports. 26 52, 1919
- 2 Cannon, W. B. Traumatic Shock. D. Appleton & Company: Philadelphia. 1933
- 3 Brooks, D., and Blacklock A. Shock with particular reference to that due to hemorrhage and trauma to muscles. Ann. Surg. 109 78 (October) 1934
- 4 Critt, G. W. A Physical Interpretation of Shock, Exhaustion, and Restoration, London: Oxford University Press, 1931.
- 5 Henderson, Y. Volume changes of the heart. Physiol. Rev. 3: 166 (April) 1923.
- 6 Howell, W. H. Contributions to Med. Res. 51-52 1903
- 7 McDowall, R. J. S. Experimental shock, with special reference to anaesthesia. B. M. J. 1: 699 (April 2) 1933
- 8 Phemister D. B. and Livingston H. L. Primary shock. Ann. Surg. 100 714 1934
- 9 Room N. W. Keith, W. S. and Phemister D. B. Experimental shock the effect of bleeding after reduction of the blood pressure by various methods. Surg. Gynec. & Obst. 56 161 (February) 1933
- 10 Cannon, W. B. A consideration of possible toxic and nervous factors in the production of traumatic shock. Ann. Surg. 100 704 (October) 1934
- 11 Golitz, F. Virchows Arch. f. path. Anat. 1: 1852
- 12 Idem. Ueber den Tonus der Gefässe und seine Bedeutung für die Blutbewegung. 3: 394 1864
- 13 Moon, J. H., and Kennedy P. J. Pathology of shock. Arch. Path. 14 268 (September) 1933
- 14 Coombs, A., and Aufreue, O. E. The relation of intra pleural pressure to the mechanism of the circulation. Am. Heart J. 9: 247 (February) 1933 34
- 15 Landis, E. M. Micro-injection studies of capillary permeability. Am. J. Physiol. 83 523 (January) 1933 8
- 16 Underhill, F. P. Kapslow R., and Fisk, M. E. Studies on the mechanism of water exchange in the animal or organism. Am. J. Physiol. 85 302 (November) 1933
- 17 Ruckstahl, G. J. Experimental study of traumatic shock. Arch. Path. 14 373 (September) 1933.
- 18 Marriott, W. M. Anhydremia. Physiol. Rev. 3: 275 (April) 1923
- 19 Hingway A. The sensitizing action of alkalies. J. Physiol. 6: 41 (October) 1926-7
- 20 Bennett, D. W. and Drury A. N. Further observations relating to the physiological activity of adenine compounds. J. Physiol. 72 285 (July) 1931
- 21 Mills, R. S. and F. J. Immunological study of native d, naturated, and reversed serum albumin. J. Exper. Med. 53: 625 (November) 1932

THE SEPARATION OF THE SUBSTANCES IN LIVER WHICH ARE RETICULOCYTOGENIC IN THE GUINEA PIG AND WHICH ARE THERAPEUTICALLY EFFECTIVE IN EXPERIMENTAL CANINE BLACK TONGUE*

BY Y. SUBBAROW, PH.D.†, BERNARD M. JACOBSON, M.D.† AND CYRUS H. FISKE, M.D.†

WORK on the identification of the materials in liver which are therapeutically effective in pernicious anemia has been in progress during the past seven years in the Biochemical Laboratory of the Harvard Medical School, and also during the past two and one-half years in the Medical Clinic of the Massachusetts General Hospital Boston. It has already been reported¹ that guinea pigs under certain conditions react to the administration of liver extracts with a reticulocytosis. Much evidence

has accrued to support the view that the guinea pig test is a valid indicator of the therapeutic potency of liver extracts. The present communication describes, in preliminary form, the isolation and properties of two substances in liver which are reticulocytogenic in the guinea pig and in addition the therapeutic effect of one of these substances in canine black tongue. The relation of these two substances and of one other substance in liver to pernicious anemia and to pellagra will be the subject of a further report in the near future.

I. THE ISOLATION OF FRACTION A

The starting material* used in the separation of one of these substances exhibited a guinea pig assay of 328,000 guinea pig units per 100 Gm. of fresh liver. The first attempts at purification consisted of the following procedures:

(1) Precipitation with 25 per cent basic lead

Solution Liver Extract (Led. 16) for Oral Use V.N.R.

*From the Biochemical Laboratory, Harvard Medical School, and the Medical Clinic, Massachusetts General Hospital, Boston.

This investigation has been supported by grant from the William W. Wallington Memorial Research Fund, the DeLams Mobile Research Fund and the Proctor Fund of Harvard Medical School by Therapeutic Research Grants Nos. 266 and 344 of the Council on Pharmacy and Chemistry of the American Medical Association; and by a grant from the Lederle Laboratories, Inc.

†Subbarow Y.—Austin Teaching Fellow Harvard University. Jacobson, Bernard M.—Research Fellow in Medicine Harvard Medical School and Massachusetts General Hospital. Fiske Cyrus H.—Associate Professor of Biological Chemistry Harvard Medical School. For records and addresses of authors see "This Week's Issue" page 664.

acetate, (2) regeneration of the filtrate with hydrogen sulfide, (3) removal of impurities by adsorption on Lloyd's reagent, (4) mercuric acetate precipitation on the Lloyd's reagent filtrate, (5) regeneration of the precipitate with hydrogen sulfide. At this stage the solution contained 20 mg of total nitrogen per 100 Gm of fresh liver. The solution exhibited a biological assay of 160,000 guinea pig units per 100 Gm of fresh liver. The solution was decolorized with a small amount of charcoal. On concentration of the decolorized solution, a crystalline precipitate separated out, the final product in a yield of 48,000 guinea pig units per 100 Gm of fresh liver. One Gm of pure crystalline substances assayed 16,700,000 guinea pig units.

II THE IDENTIFICATION OF FRACTION A

(With the collaboration of
V Prochownik, Ph D)

The material consists of needles in clusters, with a greyish tinge. It can be readily recrystallized from hot water. No water of crystallization is present. Melting point, by rapid heating 310°-314°. Optical rotation

$$\left[\alpha \right]_D^{25} = -6.7^\circ \pm 0.5^\circ$$

Calculated for $C_9H_{11}O_3N$ — C 59.64, H 6.12, N 7.74
Found — " 59.66, " 6.07, " 7.83

The amino nitrogen content (Van Slyke) is 7.8 per cent. The material gives a strong ninhydrin reaction and Millon's reaction, and strongly reduces the Folin-Ciocalteu phenol reagent. Quantitative estimation by the Millon reagent yields a value of 95.6 per cent, and by the phenol reagent of 97.6 per cent, of the respective values yielded by commercial tyrosine. Electrode titration furnishes a curve resembling that of tyrosine.

The conclusion seems justifiable that fraction A consists of *L*-tyrosine. Confirmation of this conclusion is furnished by the fact that commercial *L*-tyrosine (Kahlbaum), when tested on guinea pigs, yields a value identical with that given by the crystalline material of fraction A.

III THE ISOLATION OF FRACTION C

(With the collaboration of
G B Schnelle, DVM)

Approximately 50 per cent of the guinea pig activity of crude liver extract has been found ascribable to *L*-tyrosine. The starting point in the separation of the remaining biologically active material was a large batch of a crude liver extract*. This extract was diluted, adsorbed on charcoal, and the adsorbate eluted by ethyl alcohol. On concentration of the elute, a white granular material separated out. After solution of the precipitate in weak alkali and subsequent acidification, the material crystallized

out in spheroidal form, which under high magnification was seen to consist of aggregates of needles. The yield from 100 Gm of fresh liver was 11 mg of crystalline material. The biological assay was 140,000 guinea pig units per 100 Gm of liver. One Gm of substance assayed 10,660,000 guinea pig units.

In addition to hematopoietic activity in the guinea pig, the ethyl alcohol elute described above was found to be highly potent therapeutically in one case of spontaneous canine black tongue. In order to further study this latter property, black tongue was produced in five dogs, by the feeding of a modified Goldberger diet, consisting of the following commercial casein, cow peas, yellow corn meal, cottonseed oil, cod liver oil, and salt mixture. The filtrate of the crystalline material, in the ethyl alcohol elute, when parenterally administered to the dogs ill with black tongue was therapeutically completely inert. The precipitate, and the crystalline material derived therefrom, were administered by the parenteral route in amounts derived from 200 Gm of fresh liver daily for several days, to two dogs suffering from extremely severe black tongue. The therapeutic effect was striking, evidencing itself within 24 hours, and becoming complete within 72 hours.

IV THE CHEMICAL NATURE OF FRACTION C

(With the collaboration of
V Prochownik, Ph D)

The crystalline material is light yellow in color, and non-hygroscopic. At 0.01 mm Hg and 140°C it loses 6.1 per cent weight, at 0.01 mm Hg and 110°C it loses 4.8 per cent weight, at 760 mm Hg and 140°C it loses 3.9 per cent in weight. It is difficultly soluble in cold water, but more soluble in hot water. At 270°C the material becomes brown and decomposes without melting above 400°C. Analysis of a preparation which had been twice recrystallized, and which contained 0.7 per cent ash, gave the following results: C 37.88, H 3.04, N 33.07. The following reactions are given: xanthine test, forced murexide test, diazo reaction, and reduction of Folin-Marenzi uric acid reagent. The crystalline derivatives include a nitrate, a hydrochloride, and a sulfate.

The above facts indicate that the crystalline material of fraction C is a complex purine. Some resemblance is shown to members of the pterine series described by Wieland and Schöpf², and obtained by them from the wings of yellow butterflies. But data so far obtained on the composition, oxidation products, and ultraviolet absorption of the liver constituent do not agree with any of the known members of this group. Further study of the substance is in progress.

REFERENCES

- 1 Jacobson B. M. The response of the normal guinea pig to the administration of liver extracts. *Science* 80: 211 1934
- 2 Wieland H. and Schöpf C. Ueber den gelben Flügelfarbstoff des Citronenfalters. *Ber* 68: 2178 1925

*This material was generously furnished by the Lederle Laboratories, Inc. through the courtesy of Dr. Guy W. Clark.

OVARIAN CYST WITH TWISTED PEDICLE IN GIRL
OF NINE YEARS OF AGE

BY CHARLES J. KICKHAM, M.D.*

WHILE ovarian cysts with twisted pedicles are fairly common in adult patients, it is rare that this condition occurs before puberty, and the following case is reported for that reason.

CASE HISTORY

The patient was Barbara B., aged nine years.

Past History She had had the usual children's diseases but was never seriously ill. For the last several months she had lost considerable weight, and complained of general debility but was not under medical observation.

Present Illness For five days before admission to St. Elizabeth's Hospital the patient had severe pain in the abdomen with vomiting she was given home remedies at the beginning of the illness such as cathartics and peppermint water. For three days before entrance, the pain had been intermittent with intermittent vomiting. There had been no bowel movement for five days. Her mother noticed swelling in the lower abdomen at the beginning of the illness. A physician was called in who referred the patient to the hospital with a diagnosis of intestinal obstruction.

Physical Examination The patient was a well developed, slightly built and very thin child, appearing very ill. The tongue was coated but moist, the lungs clear throughout, the heart sounds clear but weak and rapid the skin clear the abdomen soft and tympanitic except over the lower half. A palpable mass was present on the right close to the midline extending from the pubes to one finger below the umbilicus. The mass was easily mapped out, was fixed not particularly tender and felt doughy to the touch. Rectal examination showed a tender mass apparently contiguous with mass felt through abdomen. The patient was catheterized to

eliminate bladder distention and a high enema was given without results. The nurse reported that the rectal tube could not be inserted more than four inches before meeting an obstruction.

The temperature was 98.4 the pulse 130 weak and thready the white count 16,000. Urine analysis was negative.

Exploratory operation was advised and accepted.

Preoperative diagnosis Question of appendiceal abscess or sarcoma of the bowel.

Postoperative diagnosis Right ovarian dermoid cyst with twisted pedicle.

Operation The abdomen was opened through a midline incision and a large, rounded cystic mass about the size of a grapefruit, with walls mottled and hemorrhagic was delivered out of the pelvis and found to be a large ovarian cyst with three complete twists in the pedicle. The pedicle was clamped off and the cyst removed with the right tube which was densely adherent to the mass and the pedicle sutured. The appendix was found apparently normal the meso-appendix tied off the appendix tied off and removed with cautery and the stump inverted. Further exploration of the pelvis showed the uterus apparently normal and the left tube and ovary normal. The peritoneum and abdominal wall were closed and the patient was returned to bed in good condition. She made a good recovery from anesthesia.

Postoperative The patient was discharged on the thirteenth day in good condition. When last seen two months after the operation she had increased in weight and looked and felt well.

Pathologic report The ovary is converted into a large cyst containing sebaceous material with hair and bloody fluid. The tube, broad ligament and wall of the cyst contain extravasations of blood, the appendix is seven cm. in length of narrow caliber with practically complete obliteration of the lumen throughout.

Pathologic diagnosis Strangulated dermoid cyst. Chronic obliterative appendicitis.

Kickham, Charles J.—Surgeon-in-Chief, Department of Obstetrics, St. Elizabeth's Hospital. For record and address of author see "This Week's Issue," page 624.

A SURVEY OF TONSILLECTOMY AND ADENOIDECTOMY
IN SCARLET FEVER*

BY GEORGE P. HUNT, M.D.†

THIS paper is a survey of the work on the "House Service" at the Sampson Memorial of the House of Mercy Hospital, Pittsfield, Mass. It is of interest, because conditions found at entrance to the hospital and after treatment have been tabulated in detail over a period of four teen years. The nursing procedure and technique have been under the control of one visiting physician and have not changed in the fundamentals, except in the operative interference.

I have divided this survey into two periods

Presented at the annual meeting of the Four Western County Districts of the Massachusetts Medical Society September 19 1924 held at the Holyoke Hospital, Holyoke, Massachusetts.

†Hunt, George P.—Member of Active Medical and Surgical Staff, House of Mercy Hospital, Pittsfield, Mass. For record and address of author see "This Week's Issue," page 624.

The first, that of non operative procedure from the opening of the department in July 1920 to September, 1922. No accurate records are available for 1920 other than "Thirty six patients were received." In 1921, twenty-seven cases of scarlet fever were listed under a separate heading. Forty six complications occurred in this group mainly acute otitis media suppurative, requiring many paracenteses, of whom five cases developed mastoiditis. Cervical adenitis was recorded in nine cases, one gland needing incision and drainage. Acute nephritis appeared in six children.

The second period, that of tonsillectomy and adenoidectomy as early as possible in the disease, began in September, 1922, and has been

continued for the past twelve years, in selected or complicated cases. With thirty-one cases of scarlet fever recorded, complications were present in most of this group and of a serious nature, requiring long hospitalization. The final collapse of our traditional expectant treatment resulted from the death of three children, after several weeks in the hospital, from toxemia, acute nephritis, discharging ears, very large cervical glands and hemorrhages from the nose and throat with practically complete ulceration of all tonsillar and palatal tissues. A fourth boy recovered with dense scar formation and retraction of the soft palate, so that the tip of a finger could not be introduced into the nasopharynx without dilatation. This child fortunately did not have any kidney involvement.

A great measure of our courage to tonsillectomize these acute throats came from an opportunity to intern, in 1920, with Dr. E. H. Place at the South Department of the Boston City Hospital, and our own recent unfortunate experiences. Place¹ reported a large series of cases operated for removal of tonsils and adenoids in acute contagious disease, the reading of the original article of which is recommended.

Twelve complete enucleations of tonsils and adenoids were done during the balance of 1922, with a marked drop in the number of cases of otitis media and cervical adenitis, neither did mastoiditis nor nephritis develop in any case operated.

A written permission to do a tonsillectomy and adenoidectomy was sought, when the history of repeated sore throat, tonsillitis, discharging ears or swollen cervical glands was obtained on entrance. This has been the procedure for selection of our cases for early operation.

This study includes 558 cases of scarlet fever, of whom 273 cases were tonsillectomized and adenoidectomized on various days of their disease. The control group of 285 cases did not have tonsils or adenoids removed while under our care during their illness.

TABLE 1

AGES OF TONSILLECTOMY CASES

Ages	Num- ber of Cases	Ages	Num- ber of Cases	Ages	Num- ber of Cases
1	6	11	8	21	2
2	19	12	13	22	1
3	25	13	6	23	1
4	23	14	5	27	1
5	22	15	3	28	1
6	28	16	3	29	1
7	25	17	4	30	2
8	25	18	5	31	1
9	14	19	6	33	1
10	10	20	9	34	1
				49	1

The greater number, 56.7 per cent, were operated in the first eight days of scarlet fever.

The remainder, 43.3 per cent of the tonsillectomized group, were delayed because of inability to make contact with the parents in order to obtain the required written permission, the urgency of other work or fear on the part of the family and their medical adviser in regard to operation early in the disease. Fifty-six private cases are included in the early group of non-complicated cases, tonsillectomy having been done from the second to the sixth day of the illness. The majority of these private cases entered the hospital on the morning of operation, returned home the same night, and were kept in quarantine for the remainder of the required twenty-eight days. There has never been a sec-

TABLE 2

DAY OF SCARLET FEVER WHEN TONSILLECTOMY AND ADENOIDECTOMY WAS DONE

No Complications		Complications on Entrance or Developed in Hospital	
2nd day	22 cases	1 case	
3rd "	19 "	2 "	
4th "	18 "	1 "	
5th "	14 "	2 "	
6th "	14 "	1 "	
7th "	21 "	2 "	
8th "	14 "	3 "	
9th "	8 "	5 "	
10th "	8 "	1 "	
11th "	5 "	2 "	
12th "	5 "	2 "	
13th "	5 "	3 "	
14th "	6 "	1 "	
15th "	11 "	2 "	
16th "	7 "	2 "	
17th "	8 "	5 "	
18th "	4 "	1 "	
19th "	3 "	1 "	
20th "	3 "	2 "	
21st "	2 "	0 "	
22nd "	4 "	5 "	
23rd "	4 "	1 "	
24th "	2 "	0 "	
25th "	1 "	1 "	
26th "	2 "	1 "	
27th "	1 "	1 "	
28th "	2 "	0 "	
32nd "	2 "	1 "	

Total 215 cases. Also one case operated on 35th, 36th, 37th, 40th, 51st, 53rd, 63rd, 64th, and 78th days. Total 58 cases.

ond case in these families, nor do we know of another contact case occurring in any family from any patient tonsillectomized in our series. This study showed 215 tonsillectomies without complications and fifty-eight with complications, the operation being done because of the secondary infections. There were twenty-seven children of the fifty-eight complicated tonsillectomies who entered the hospital with complications, whose history showed from twenty to fifty-

one days' illness at home. The remaining thirty-one cases developed some complication in the hospital, before tonsillectomy in nineteen and after tonsillectomy in twelve cases. None of this latter group gave a history of repeated faucial infections, which was our criterion for operation.

The white blood count was studied in two series of operated cases at different times in this survey. The first group consisted of twenty-five children. The second group was composed of twenty-three children. The results were the same in both groups. The white cells on the day before operation averaged between 12,000 and 21,000, the day following tonsillectomy and adenoidectomy the average was between 13,000 and 16,000, and the third day postoperative the white cells were 9,000 to 11,000. There were but eight exceptions in the forty-eight cases. These eight showed an increase of 500 to 3,000 white cells on the third day postoperative due to otitis media developing after tonsillectomy.

Complications of scarlet fever appeared in 157 of the 557 cases studied. Acute otitis media suppurativa was found on admission in thirteen cases. This complication developed before tonsillectomy and adenoidectomy in thirty-two cases and after operation in eight cases. Mastoiditis occurred in four children.

CASE 1 On admission both ears discharging pus with questionable tenderness over mastoids. Incision of membrane tympani was done at once providing more adequate drainage. Tonsillectomy and adenoidectomy was performed on the seventeenth day and re-incision of drum membranes. This child of three years was taken home the next day against advice. He reentered thirty days later when the mastoidectomy was done on the forty-eighth day of the scarlet fever.

CASE 2 Suppurative otitis appeared on the eighteenth day with marked bilateral cervical adenitis. Tonsillectomy and adenoidectomy was done on the twentieth day. The adenitis promptly quieted down yet the ears even with repeated incisions of drums and profuse drainage went on to a right mastoiditis which was operated on the forty-fifth day of the illness. This child was discharged well on the hundred and fifth day, with mastoid healed and ears dry.

CASE 3 Tonsillectomy and adenoidectomy was done on the fourth day of illness. Suppurative ears appeared on the thirteenth day. Mastoidectomy was done on the twenty-eighth day. The patient was discharged dry and clean on the fifty-fourth day.

CASE 4 A twelve-year-old boy was sick at home six days. He entered the hospital with both ears discharging pus and both mastoid areas swollen and extremely tender. He appeared very sick, mentally cloudy and dehydrated and had a high fever with rapid, fair quality pulse. The ear consultant did a double mastoidectomy the next day. Death occurred two days later. No tonsillectomy or adenoidectomy was done.

Cervical adenitis was found in fourteen cases on admission, and developed in eight cases in the hospital. These twenty-two cases were all

tonsillectomized as soon as possible, with prompt recession of the enlarged glands, except in five cases which showed marked enlargement on admission. It was necessary to incise and drain the glands when the tonsillectomy and adenoidectomy was done in this latter small group.

Bronchopneumonia occurred in four cases, on the fourth, seventh, twelfth and fourteenth days of the scarlet fever. Three of these children were safely tonsillectomized before discharge. The fourth child, of one and one-half years, was admitted with scarlet fever, having very recently recovered from measles. The cervical glands were tremendously enlarged and tender, with almost a sense of beginning fluctuation. The huge hypertrophied infected tonsils nearly met in the midline. A large amount of adenoids was present. Tonsillectomy and adenoidectomy was done on the thirteenth day. Signs of pneumonia appeared that night, and death occurred twenty-four hours later.

Acute nephritis was found in six cases on admission.

CASE 1 Died on the day of admission to the hospital.

CASE 2 Tonsillectomy and adenoidectomy was done on the ninth day of the illness, the patient being discharged on the twenty-ninth day. The urine was normal.

CASE 3 Admitted with bilateral suppurating cervical adenitis and double suppurative otitis media. Tonsillectomy and adenoidectomy was done on the seventy-eighth day. This child left the hospital free from discharges on the ninety-fourth day of the illness, the urine clearing rapidly.

CASE 4 Tonsillectomy and adenoidectomy was done on the twenty-second day and the patient was discharged on the fifty-sixth day, the urine being normal.

CASES 5 and 6 Operation was refused in these two cases. They were discharged on the twenty-fifth and thirty-fourth days respectively. Both urinalyses showed many casts and red blood cells.

CASE 7 This our most recent case of nephritis is added to the list as he shows many interesting features of our study, having entered the hospital August 28, 1934, after our tabulations had been practically completed. This boy of four years was sick at home for over five weeks with scarlet fever. There was marked edema of the face, the extremities and the abdominal wall and a distinct fluid wave in the abdomen. The first urine voided seemed pure blood. In the first twenty-four hours the output of urine was six ounces. We gave 35 cc. of fifty per cent glucose intravenously, limiting his intake to thirty ounces all of which he did not accept, and obtained nine ounces of urine for the second twenty-four hours. This urine showed specific gravity 1.030, a high trace of albumin, showers of casts and many red blood cells. On admission the blood examination showed red cells 2,690,000, white cells 23,500, hemoglobin 43 per cent. On the fourth day in the hospital 250 cc. of the mother's whole blood was given intravenously. From this time the urinary output slowly increased to forty-four ounces on the tenth day with an intake of forty-seven ounces of fluids. The blood examination on the eleventh day showed 3,600,000 reds, 9,500 whites, hemoglobin 45 per cent. The next day the transfusion of 250 cc. of mother's blood was repeated.

Clinically, on the fourteenth day, the boy showed no edema and the urine contained only the slightest possible trace of albumin, although with many casts and red blood cells. His weight on entrance was thirty pounds. He now weighed twenty-five pounds. His blood pressure was 92/70. Improvement continued with the intake of fluids and urinary output practically balanced each day, although the urine still showed the very slightest possible trace of albumin and the sediment continued to show many casts and red blood cells. On September 17, the twentieth day in the hospital, and about the eighth week of the scarlet fever, complete enucleation of the moderately enlarged, infected tonsils was performed under light ether anesthesia and a considerable amount of both central and lateral adenoids was removed by adenotome and gauze finger method. Separation of the tonsil capsules from the palatal fossae was a little slow and difficult on account of firm adhesions, yet was accomplished with a minimum of trauma. A spurter at the base of each fossa was sutured with catgut, and the fossae left clean, dry and glistening. Recovery from the anesthetic was prompt, without vomiting or oozing. In the next twenty hours, the patient took twenty-two ounces of fluids by mouth, plus six ounces of five per cent glucose by rectum, eliminating twenty-one ounces of urine. This urine showed a specific gravity of 1.020, the very slightest possible trace of albumin and about the same number of casts and red blood cells as before operation. The day of operation the temperature was 99.4°, pulse 80, respirations 20, eight hours after operation the temperature was 100.1, pulse 86, respirations 22, twenty-four hours, after operation, temperature was 98.4°, pulse 80, respirations 20, and on the third day, temperature was 99°, pulse 80, respirations 20. The boy continued to take considerable amounts of fluids and soft solids without any appreciable faucial distress, so that the output of urine balanced the intake. On the tenth day, postoperative, a phenol sulphonephthalein test showed the elimination of fifty-one per cent of the dye in two hours and ten minutes. The nonprotein nitrogen was 43 milligrams. From this time until discharge the improvement in his urinary findings continued, his blood picture became normal and he was discharged October 27, six weeks after the tonsillectomy and about fifteen weeks from the onset of scarlet fever. The urine was clear, free from albumin and casts, while the centrifuged sediment showed only an occasional red blood cell.

(Two subsequent checkups in the outpatient department show the urine normal, no albumin, casts nor red blood cells being found.)

Acute nephritis developed in the hospital in five cases.

CASE 1 Tonsillectomy and adenoidectomy was performed on the fifteenth day. The patient was discharged on the twenty-eighth day with no edema and the urine clearing.

Four others in whom the involvement of the kidneys appeared on the fourteenth, seventeenth, twenty-first and twenty-seventh days refused operation and they were discharged unimproved on the twenty-seventh, thirtieth and forty-eighth days of illness, one leaving against advice on the eighteenth day.

The other complications of this series of scarlet fever cases were of minor importance, with a few exceptions. Blood transfusions were given on the third, fifth, and eighteenth days of

illness in three cases, followed by tonsillectomy and adenoidectomy on the next day. Erysipelas occurred twice, on the twelfth and twenty-third days respectively. The latter case was tonsillectomized after recovery from the erysipelas. Acute arthritis developed in three cases, occurring ten, eighteen and thirty-five days before the tonsillectomy. Peritonsillar abscess complicated six cases. Three of these patients were tonsillectomized on the twelfth, fifteenth and nineteenth days of the illness. The other three cases refused operation for removal of the infected tonsils and adenoids. The abscess was incised and drained only. Recurrent scarlet rash appeared in two cases, on the nineteenth, and thirteenth days, tonsillectomy being done on the thirteenth and fourteenth days respectively. Urticaria, of rather marked severity, occurred in three cases following the intradermal Schultz-Carlton test, undoubtedly a horse-serum sensitivity from previous toxin-antitoxin immunization, which had been given for diphtheria prevention. There were also seventy-three patients during the five-year period of 1926 to 1931, who developed an urticaria of greater or less severity following the intramuscular injection of scarlet fever antitoxin, it having been given to 206 cases on entrance to the hospital. Of this group of seventy-three urticarias, eighteen were tonsillectomized and fifty-five were not operated upon. It seemed from our observations that some lots of the serum would be followed by more severe and prolonged urticaria in practically everyone injected, irrespective of the day of the disease when given. No serum has been used since 1931, as so many complained that the hives were much worse than the original scarlet fever.

The mortality for the entire group of 558 cases consisted of three deaths, one with acute nephritis on the day of entrance, one with bilateral mastoidectomy on the fourteenth day of the illness, no tonsillectomy having been done. The third child died of bronchopneumonia on the fourteenth day, tonsillectomy and adenoidectomy having been done on the previous day. This last case is the only one which might be attributed in any way to the operative procedures.

The ages of the group varied from one to forty-nine years. The day of illness when operated varied from the second to the thirty-second in 215 early tonsillectomies, with no complication whatsoever. Fifty-eight scarlet fever patients were tonsillectomized and adenoidectomized because of complications on admission or the development in the hospital. The day of operation in this group varied from the second to the seventy-eighth day of the illness. Six children under one and one-half years of age entered with some complication, operation being done on the seventh, eighth, thirteenth, nineteenth, sixty-third and twenty-second days of the disease.

The nonoperated or control group consisted of 285 cases of scarlet fever. Of these patients, 186 showed no complication during the course of the disease, many having had a tonsillectomy and adenoidectomy at some previous time. This fact had some bearing on the mildness of the infection. Ninety nine cases had one or more complications, necessitating long hospitalization or quarantine at home. This time varied from seventeen to one hundred and sixty seven days, with an average of between fifty and sixty days, or more than twice the infectious period of those cases who had an early tonsillectomy and adenoidectomy. A goodly number of this group were discharged against advice and reported to the health officer as still being infectious. We know of other children in the family and neighborhood who had real attacks of scarlet fever from some of these contacts. On the other hand, we do not know of a single case of scarlet fever infected from contact with our tonsillectomized group.

Hemorrhage has been a minimal factor in the operated group. There were but two cases who required suture for secondary bleeding which occurred on the sixth and ninth days respectively. It has never been necessary to pack the adenoid space. We have maintained careful technique in all our tonsillectomies, avoiding unnecessary trauma, using light ether under expert control, enucleating completely every bit of tonsil and adenoid tissue, particularly the lateral adenoids, and finally absolute hemostasis, picking up and stitching each oozing vessel in each fossa, so that the fossae are left clean dry and glistening.

Tonsillectomy and adenoidectomy at any period after the acute infections of scarlet fever or diphtheria should not be done in a general operating room or special nose and throat clinics, without first determining, if possible, the absence of hemolytic streptococci which may be of the scarlet fever type, and the absence of the Klebs-Loeffler bacillus when the child has had diphtheria. We realize the difficulty of positive identification of the scarlet fever type of hemolytic streptococci, yet numerous cultures may prevent contamination and infection of other operated individuals, if great care is used in the selection of the operating room.

Every physician knows of frequent family transmission of scarlet fever from the discharges of the nose, throat, suppurating ears, unhealed mastoids, suppurating cervical glands and paronychia. No case is well until every gross discharge has ceased, nor should the quarantine be removed until the case is dry and clean. Too many cases are released from quarantine on the twenty eighth day with gross discharges. No understanding that the discharges are infectious is obtained by the family to explain the necessity for a longer isolation than the set rule of twenty eight days. On the other hand, isolation for

twenty-eight days is unnecessary and undesirable in those cases operated in the first few days of scarlet fever, as shown by the studies of Tongs¹ and Nichols and Bryan². Without early complications and with early, thorough tonsillectomy and adenoidectomy, the fauces and nasopharynx heal just as rapidly as in other conditions. They quickly become free from hemolytic streptococci on repeated culture, sticky mucoid secretion or other evidence of scarlet fever infection, on or about the sixteenth to the twentieth days of the disease and can be released with safety to themselves and to other persons.

Burgin and Higgins³ in a recent article have reviewed certain studies on the prevalence of hemolytic streptococci, reporting the carrier rate among patients with tonsils higher than among those without tonsils.

Nichols and Bryan² report tonsil swabs positive for streptococcus hemolyticus more frequently than from other nasal or pharyngeal sites. In a group of fifty cases, 28 per cent were positive by tonsil swab.

Blanton, Burlans and Hunter⁴ reported a carrier rate of 80 per cent in patients with tonsils. Cultures from the tonsillar crypts after excision were positive for hemolytic streptococci in 90 per cent of the cases operated.

Tongs¹ studied the persistence of carriers after tonsillectomy in a group of 342 persons and found only 17 or 4.9 per cent to be positive for hemolytic streptococci on culture.

Nichols and Bryan² also found in thirty-one cases of tonsillar cultures which were positive for hemolytic streptococci, that none could be detected eleven days after tonsillectomy in twenty seven of these patients.

SUMMARY

Two comparable groups of scarlet fever cases are presented. Tonsillectomy and adenoidectomy was done on 273 patients, of whom 215 cases were operated early in the disease and had no complications. Of the remaining 58 operated cases, 27 patients entered the hospital with some complication and 31 developed the complication under our care, yet but 12 complications followed tonsillectomy. The non tonsillectomized group of 285 patients showed ninety nine with complications.

CONCLUSION

Tonsillectomy and adenoidectomy in suitable, selected cases of scarlet fever are safe and logical procedures. The earlier the operation is done, the less is the probability of complications and the shorter is the contagious period.

REFERENCES

1. Place E. H.: Tonsillectomy in contagious diseases. Boston M. & S. J. 1871: 481, 1922.
2. Nichols, L. B. and Bryan, Harold L.: The occurrence of the streptococcus hemolyticus in the throat of children on hospital wards. J. Pediat. 6: 156, 1924.

- 3 Nichols H. J. and Bryan J. H. The tonsils as foci of infection in streptococcus hemolyticus carriers J A M A. 71 1813 1918
- 4 Blanton W. B. Burhans C. W., and Hunter O. W. Studies in streptococcus infections at Camp Custer Michigan. J A M A. 72 1520 1919
- 5 Tonge M. S. Hemolytic streptococci in the nose and throat. J A M A. 73 1050 1919

- 6 Nichols H. J. and Bryan J. H. The tonsils as foci of infection in streptococcus hemolyticus carriers J A M A. 71 1813 1918

(Grateful acknowledgment is expressed to Mrs. Harriet Chitt, R.N., supervisor of the contagious department, for standard nursing technique and assistance in tabulating this survey.)

ACUTE APPENDICITIS IN CHILDREN THE CHALLENGE OF ITS CONTINUING HIGH MORTALITY*

BY HENRY W. HUDSON, JR., M.D.†

TO discuss appendicitis from the viewpoint of prompt diagnosis and early operation savors of "carrying coals to Newcastle." This is particularly true when one offers no original and valuable contribution to therapy. Because the unprevented, but preventable, death of a child is tragic and because of a strong personal conviction that such tragedies are avoidable only by emphasizing and deemphasizing the problem before professional groups, this discussion is presented. It is hoped that the rather startling statistical facts to be presented will arouse in each of you an enthusiasm for and a desire to contribute to the education of both your lay and professional friends. It is, also, a firm personal conviction that such education will accomplish more than will stressing laboratory aids to diagnosis, special operative techniques, or therapeutic adjuncts.

In Massachusetts in 1900 appendicitis was listed as the cause of death of twenty-five children, while in 1930 it was the cause of death of 107. This represents an increase in child deaths from appendicitis of 428 per cent during a period in which the child population increased only 41 per cent. Fifteen years ago the diagnosis of appendicitis did not appear in the list of the first ten causes of death of children, but during the years from 1926 to 1930 appendicitis ranked eighth and for the longer period 1926 to 1933 occupied fifth place. As the general death rate in the age group from 1-10 years has steadily declined from 1290 per 100,000 in 1900 to 242 per 100,000 in 1933, the appendicitis death rate has increased from 5.2 to 15 per 100,000. In this thirty-four year period the percentage of all deaths due to appendicitis has risen from 0.5 per cent to 5.3 per cent. Allowance for more accurate diagnosis on death certificates and progress in the control of other diseases do not alter the fact that of each twenty children dying, one now dies from appendicitis. And yet, it is not unreasonable to believe that none need die from this cause.

In appendicitis, prompt appendicectomy is a specific treatment of such merit that the therapy

of few diseases can be compared favorably with it. Without complications the mortality is nil. Delayed diagnosis and operation mean peritoneal complications and a death rate rising rapidly. These statements are platitudes but require constant repetition.

From time to time we have joined with others in reporting experience with appendicitis and the results of treatment. We have broken down our figures and demonstrated the value of early diagnosis and treatment and the menace from the administration of cathartics, and have demonstrated the increased mortality in appendicitis with abscess formation, and in appendicitis with diffuse or spreading peritonitis as compared with uncomplicated appendicitis. For the purpose of this discussion we have analyzed the records of 100 consecutive patients with appendicitis admitted between March 2, 1933 and October 1, 1934. Each record was reviewed critically and no case was included that was not proved to be one of acute appendicitis. Thus, operations for the "interval" or "chronic" appendix were excluded as were the few in which the surgeon's description or histologic report, or both, indicated a doubt as to the presence of acute inflammation of the appendix. Both private and public ward cases were included. These, then, are cases of appendicitis in its acute forms, not simply a series of appendicectomies in children. We have analyzed the data for the purpose of demonstrating what actually happens to children with appendicitis in this community and to indicate the need for consideration of this disease by parents and by physicians.

Only twenty-eight of the 100 children entered the hospital within twenty-four hours after the onset of the attack. One patient with hemophilia died of hemorrhage five days after operation. The remaining twenty-seven were discharged well after an average of 12.5 hospital days. Drainage was instituted in eight or 28.5 per cent of this group.

Seventeen children were admitted from twenty-four to forty-eight hours after the onset of symptoms. Of these, three died making a mortality rate of 17.6 per cent. The other fourteen were discharged well after an average hospitalization of 14.9 days. Drainage was employed in nine or 53 per cent.

*Read before the Norfolk District Medical Society, October 30, 1934.

†From the Surgical Service of the Children's Hospital.

Hudson, Henry W., Jr.—Associate Surgeon, Children's Hospital. For record and address of author see "This Week's Issue," p. 64.

The remaining fifty five patients did not enter the hospital until they had been ill forty eight hours or more. Six or 10.9 per cent of these died. Forty nine spent an average of 21.1 days in the hospital. Six of the forty nine were readmitted later for appendicectomy having been considered too ill at the first admission for any procedure other than drainage. Drainage was considered necessary in forty-eight or 87 per cent of this group.

Thus 10 per cent of the children, including the one with hemophilia, died as the result of a disease from which, ideally there should be no deaths. In 65 per cent inflammation had progressed to such a degree that drainage was instituted. If ten days be considered a reasonable average period of hospitalization for the uncomplicated case, 1000 hospital days should have sufficed. There were 1583 hospital days.

Five children were known to have had no medical attendance previous to admission at least six were not seen by a physician until from twenty four to forty eight hours after the onset of illness, and at least six more until more than forty-eight hours had elapsed. From forty nine records details of previous medical attendance were available. Twenty of these patients or 40 per cent, were referred promptly by a physician after his first visit but in twenty nine instances or 60 per cent there was delay in recommending surgical treatment.

What explanations can there be for the facts that seventeen parents did not call a physician until more than twenty four hours after the onset of a child's illness and that twenty nine physicians failed to recommend prompt surgery when called?

There seem to be two explanations. First the tendency to regard lightly the classical triad of symptoms abdominal pain, vomiting, and fever and, secondly, the physician's tendency to adopt a casual rather than a watchful policy of expectancy. So long as these attitudes persist, there is little hope that tragedies will be avoided.

Two suggestions are offered for control of the needless loss of children's lives and the economic loss of unnecessarily prolonged illness, first education of parents and, secondly, the adoption of a point of view by physicians.

That education is valuable has been demonstrated beyond question in Philadelphia, which, after an extensive campaign of publicity, has lessened materially its appendicitis death rate. The insurance companies have realized the value in such education and some of them through periodicals and direct mail announcements are urging that cathartics be avoided in the presence of abdominal pain and that a physician be called promptly. Since in appendicitis appendicectomy is a specific treatment capable of results equal or superior to the therapy of value in other disease, it seems obvious that

physicians should instruct their clientele in the importance of early diagnosis and treatment of children with abdominal pain. The position of appendicitis in the mortality table should silence any criticism that the physician was raising an unnecessary alarm.

The point of view which the physician may adopt advantageously is to consider appendicitis seriously whenever there is a complaint of abdominal pain, vomiting and fever. It is true that these are symptoms common to the onset of many acute infections in childhood and that they are far from pathognomonic. Since it is also true that in no disease is there greater need for early diagnosis and in no disease is there a more valuable form of therapy, lives will be saved if appendicitis be considered until definitely excluded.

Pain is the most common symptom and, in our experience, has been present in 99* per cent of the patients observed. Although commonly referred to the umbilicus or right lower quadrant, the pain may be poorly localized or complained of only on micturition or defecation. It need not be severe and this fact is sometimes an explanation for error in diagnosis.

Nausea or vomiting has been noted in 92* per cent of the patients.

Fever between 99-101° (F) is the rule, but there are wide variations from the rule. In infants commonly present a more marked febrile response. Occasionally in the obstructive forms of appendicitis, the temperature is normal.

The tongue is often dry and coated.

The pulse rate is commonly elevated but, like fever, elevation may not be present.

Local tenderness is of the greatest significance and has been noted by abdominal or rectal palpation in 94* per cent of the patients. In this connection we wish to emphasize that an examination is not complete without rectal examination. A finger cot or glove for this purpose is more valuable equipment than a blood counting pipette.

Muscle spasm was recognized in 83* per cent of the patients. To appreciate muscle spasm in the child, patient approach, prolonged examination, and experience in the examination of children, are necessary. The degree of spasm expected of the adult with appendicitis will often indicate peritoneal inflammation in the child. Leucocytosis, commonly 12,000 to 20,000, is to be expected but there is considerable variation in either direction. Gangrenous appendicitis in a patient with a leucocyte count under 10,000 is seen several times each year. There is almost always an increase in the neutrophil percentage but one must remember that (as compared with the adult) there is a relative lymphocytosis until the fourth year.

The coexistence of appendicitis and another illness, notably respiratory infections, measles,

The percentage figures quoted refer to an unpublished study of 80 cases of appendicitis in the Deaf Children Hospital.

and scarlatina may be confusing but in the presence of localized tenderness operation is indicated

At times the result of examination will be equivocal and further observation will be necessary. It is in such instances that errors in management are most frequent. The interval between observations must be short as the inflammatory process may increase very rapidly in the child whose appendix is thin-walled and whose omentum is poorly developed.

One is aware that conditions in the homes of those of limited means often are not conducive to proper examination. In such instances, hospitalization for a period of observation is a wise choice.

Physicians have learned to avoid the administration of opium and its derivatives lest diagnostic signs be masked. They should learn also to avoid cathartics whose local irritative effect contributes to the increase in the inflammatory process. If it is desired to bring about defecation, an enema is an effective method and not accompanied by the danger of cathartics.

SUMMARY

1 Appendicitis as the cause of death of children has increased steadily in Massachusetts in the past thirty-four years.

2 Of each twenty children dying, one now dies of appendicitis.

3 Deaths from appendicitis are preventable.

4 In the community served by the Boston Children's Hospital, early diagnosis and prompt operation constitute the exception and not the rule.

5 Early diagnosis is possible only when parents appreciate the frequency of appendicitis in childhood and when physicians regard the triad of abdominal pain, vomiting, and fever in childhood as strongly indicative of appendicitis.

6 Careful and complete examination of children under favorable conditions is necessary if early diagnosis is to be made.

7 Appendicitis and the acute infections of childhood may coexist.

Cathartics are contraindicated in the presence of abdominal pain, vomiting, and fever.

CONCLUSIONS

Education of lay persons in the frequency and symptoms of appendicitis in childhood is desirable.

Discussion of appendicitis in childhood by professional groups is necessary.

PURULENT INFECTIONS OF THE HIP JOINT*

An Analysis of Sixty Cases

BY FRANK A. SLOWICK, M.D.†

IN spite of a fairly large amount of literature on the subject of acute infectious arthritis, there is still a lack of unanimity in regard to the classification, prognosis and treatment of purulent infections of the hip joint. Studies of the late results are rare, and those which are available demonstrate the unsettled opinion in this type of joint infection.

On the basis of the clinical course, the infections of the hip joint in infancy have been separated from those of childhood and adult life. These as a group have shown early healing and freedom from recurrences, sequestration and severe joint destruction. This division is in part justified but the view that this is not solely a peculiarity of the disease in infancy has led us to study a group of purulent infections of the hip joint embracing all ages. There is evidence to show that this early healing is a characteristic of streptococcus hemolyticus and certain other infections of this joint at all ages, that, at all ages, if drained early and protected diligently against complications, they do heal in

a few weeks without leaving the sequela of staphylococcus osteomyelitis of this joint.

There is a question whether some of the staphylococcus types of hip joint infection may not be treated by simple incision and drainage to bring about a favorable recovery without severe destructive changes. These patients can also be separated on a pathologic basis from the group resulting in severe sequelae.

The distinction claimed for these infections of infancy, then, is more to be applied in distinguishing the so-called primary infections of the hip joint, at whatever age, from a true osteomyelitis of that joint, and the basis for this view is adequately demonstrated by the data gained in a study of the joint changes in the cases of this series.

This study is based on a series of proved cases of purulent infection of the hip joint—proved either by aspiration of the joint for diagnosis, or by finding pus at operation, the causative organism being identified by culture from the joint and from the blood whenever possible. Sixty cases have been included, the majority of which were treated on the surgical wards of this hospital during the past fifteen years. They represent cases whose early treat-

*From the Sixth Surgical (Bone and Joint) Service of the Boston City Hospital.

†Slowick, Frank A.—Orthopedic Surgeon, St. Luke's Hospital, Pittsfield, Mass. For record and address of author see *This Week's Issue*, page 674.

ment was managed in no less than seven hospitals, four in the Boston metropolitan area, two in New York, and one in Maine. We have, therefore, a fair cross section of the results of treatment of as large a series of cases of purulent infections of the hip joint as has been reported in detail. Of the sixty cases treated, fifty three were unilateral and seven were bilateral, making a total of sixty-seven hip joints involved. The right hip was infected in thirty three patients, and the left in thirty four. There were forty four males and sixteen females.

AGE DISTRIBUTION

The ages ranged from six weeks to fifty-eight years, and 10 per cent of these were two years or under. There were twenty three streptococcus hemolyticus cases and thirty-seven of the staphylococcus type. Of the twenty three streptococcus cases six occurred up to and including two years of age, three from two to five years, eight from six to fifteen years, and the remaining six cases were distributed between the ages of sixteen and thirty nine years. Of the thirty seven staphylococcus cases, one occurred in the first five years group at three and a half years of age, twenty-one were found in the age group from six to fifteen years and the remaining fifteen were distributed between the ages of sixteen and fifty-eight years.

ETIOLOGY

In considering the etiology, the majority of cases were found to follow some preëxisting infection. In the streptococcus group over 50 per cent were found to have appeared during the course of an upper respiratory infection while the same association could not be demonstrated in the staphylococcus cases. This contrast is presented in table 1, as follows:

TABLE 1

PREEXISTING INFECTIONS IN THE ENTIRE SERIES

Streptococcus Group		Staphylococcus Group	
Head Cold	4	Distant Focus of	
Acute Otitis Media	8	Osteomyelitis	6
Acute Mastoiditis	3	Adjacent Focus of	
Scarlet Fever	1	Osteomyelitis	3
Acute Pharyngitis	1	Furuncle	2
Infected Hand	1	Tonsillitis	2
Puerperal Sepsis	1	Postoperative Infection	2
Fall	1		1
Unknown	8	Carbuncle	1
	23	Infected Bleb of the	1
		Foot	1
		Infected Teeth	1
		Chicken Pox	1
		Bullet Wound	1
		Fall	4
		Unknown	13
			37

PATHOLOGY

The site of the infection in the various parts of the hip joint has been the source of some controversy. It is commonly reported, however, that localization of the infection may be in any of the following parts: the synovium, the neck, the epiphysis, or the innominate bone adjacent to the acetabulum.

Two types of infection were described by Phemister¹, the primary purulent arthritis, and that which is secondary to a focus of osteomyelitis.

The primary type is one in which no early focus can be demonstrated in the bony structures, and the changes produced are due to the presence of pus in the joint and pressure of muscle spasm. Moulounguet², in discussing the radiography of the lesions of the primary types, describes the destruction of the joint structures as a "compressive ulceration", an erosion of the cartilage of the head of the femur and of the acetabulum, and the subjacent bone, as a result of the marked spasm of the muscles about the joint. These changes first appear in the roentgenograms as a narrowing of the cartilage space. The localization of the infection in this class of cases, therefore, must be in the synovial and subsynovial layers of the joint capsule, and the changes are unlike those due to a focus of infection arising within the bone.

The secondary type of arthritis can be demonstrated by the early bone changes, to be the result of an osteomyelitis of the neck of the femur, or of the innominate bone adjacent to the acetabulum. It is doubtful whether an epiphyseal localization occurs since the evidence thus far available does not clearly demonstrate this point. In none of our cases could we show a true epiphyseal focus, and those with a moderate or severe destruction of the periphery of the epiphysis were but a late stage of the primary type of infection.

The early joint changes, which occurred in the entire series from nine to fifty six days after the onset of the infection are presented in table 2. These are obtained from a study of the roentgenograms which show the earliest joint changes in each case.

It is to be noted that no intraosseous foci were demonstrable in the cases of the streptococcus group. This was true in infants as well as in children and adults, and the changes as seen in the roentgenograms were in accord with the changes as described by Phemister and others. Nine of the staphylococcus cases presented the same picture, and are classed with the cases which are known as the primary type, and which arise from a localization of the infecting organisms in the capsular elements of the joint.

The majority of the staphylococcus cases, however, presented evidence of localization within the bone. The commonest site was found to be

in the neck of the femur, and it is interesting to note that, of the thirteen cases which showed a focus in the neck, none were over fourteen years of age. On the other hand, adults usually showed localization in the innominate bone adjacent to the acetabulum, or no bone focus appeared, which we interpret to mean synovial or sub-synovial localization.

TABLE 2
EARLY JOINT CHANGES

Streptococcus Hemolyticus Group

No joint changes demonstrable	2
Narrow cartilage space	14
Focus in the neck of the femur	0
Focus in the region of the acetabulum	0
Focus in the epiphysis	0
No early data available	7
	23

Staphylococcus Group

No joint changes demonstrable	2
Narrow cartilage space	7
Focus in the neck of the femur	13
Focus in the region of the acetabulum	4
Focus in the epiphysis	0
No early data available	11
	37

DIAGNOSIS

We have one guide to early diagnosis which is of considerable importance. That is the aspiration of the joint as soon as a purulent arthritis is suspected. No case which has been subjected to this diagnostic procedure has had any untoward results from it.

In many of the earlier cases the diagnosis was made solely on the clinical findings, but 20 per cent of them, some of the later cases, had the benefit of aspiration. This made for an earlier diagnosis of purulent infection, and earlier drainage as a rule. None of the aspirated cases were drained later than fifteen days after the onset, and most of them were drained between the fifth and eighth days. But the non-aspirated cases, in general, were drained later, the period extending in a few cases up to four weeks, and in one case to eight weeks.

Of importance in the differential diagnosis are osteomyelitis of the upper end of the shaft of the femur and Ewing's tumor of the ilium. One case of Ewing's tumor in a young adult was treated for a time as a purulent arthritis of the hip secondary to an osteomyelitis of the ilium. Aspiration showed a purulent exudate not unlike that of a staphylococcus infection, but cultures were repeatedly negative. Biopsy later demonstrated the true nature of the hip disease.

TREATMENT

There are several factors which influence the value of the treatment and the end-result. These

begin with the natural resistance of the individual and the type of infection, and include early diagnosis, protection of the joint against complications from the time of onset, the type and time of operation, the kind of postoperative protection, and later, the secondary operation if indicated. Some of these factors are not within our control, but early attention to many of them will go far in improving the results.

The earliest operation for drainage was done, in one case, two days after the onset, seventeen were drained within ten days, ten more were drained within twenty-one days, and three were drained four, five and eight weeks after the onset. Except in two cases, the early operation consisted of simple arthrotomy plus the insertion of a drain down to the capsule of the joint. The neck of the femur was drilled in these two cases, but this did not favorably alter the course of the disease. The posterior incision was used in thirty-two cases, the anterolateral approach in twenty-seven cases, and the medial incision in one case. The posterior incision secured the best drainage.

The immediate postoperative protection of the joint is very important in preventing the complications of dislocation, and pressure necrosis and separation of the epiphysis. This is best done by traction in the abducted position. This method of protection was used in twenty-one cases, plaster spica casing only in six cases, an abduction hip splint in one case, no protection in eleven cases, and no information was available in the remaining cases. For this series we find adequate protection in only one-third of the cases.

The observations on the subsequent treatment required by the patients in the two groups reveal a striking contrast. Only two cases in the streptococcus group came to a second operation because of persistent sepsis, and these could have been prevented by an early operation. In one, a child of ten years, and adequate postoperative protection in the other, an adult thirty-eight years of age. On the other hand, of the thirty-seven staphylococcus cases, twenty-three required from one to several reoperations to remove sequestra or to drain abscesses. Of the twenty-three reoperations, six were resections of the hip joint for the purpose of obliterating the sinuses and the diseased parts of the joint.

END-RESULTS

The end-results may be examined from the point of view of the anatomical result after the joint has healed or the acute phase has subsided, which is usually not later than three months. However, forty of these cases were observed for a period ranging from six months to twenty-five years, and the remaining twenty were under observation for a period less than six months.

There were ten deaths in the entire series, showing a mortality of 16.6 per cent. Three of

these cases were in the streptococcus group and died of septicemia early in the course of the disease. Of the seven staphylococcus cases, four died of septicemia early, one from pulmonary embolism, one from postoperative shock following a resection, and the remaining case died of amyloid disease four years later.

The following table shows the anatomic results in fifty recovered cases in both groups

TABLE 3
ANATOMIC RESULTS IN FIFTY RECOVERIES

<i>Streptococcus Hemolyticus Group</i>	
Recovery with a good joint	6
Slight erosion of the epiphysis without dislocation	3
Destruction of the epiphysis with dislocation	7
Simple dislocation	3
Complete bony ankylosis	1
	20
<i>Staphylococcus Group</i>	
Recovery with a good joint	5
Destruction of the neck and epiphysis without dislocation	10
Destruction of the neck and epiphysis with dislocation	8
Slight erosion of the epiphysis without dislocation	6
Flail joint after resection	1
	30

There were eleven cases, or 22 per cent that recovered with a good movable joint, six in the streptococcus group and five in the staphylococcus group. Only two of the six streptococcus cases who recovered with normal joints were two years of age or under. The other three in infants who recovered, although healed, presented joints which were wholly disorganized.

From the standpoint of function there were twenty cases, or 40 per cent of the recoveries that could be classed as good or fair. The remaining thirty cases were classed as poor functional results because of severe destruction and deformity.

Further study of the results indicates a striking difference in the manner of healing in both groups. Only two cases of the streptococcus type presented sinuses, while the other eighteen remained healed and did not require a secondary operation for sepsis. In the thirty cases of the staphylococcus group, twenty still showed sinuses and required secondary operations. Although the group of nine primary infections of the staphylococcus type did not show the favorable results of the streptococcal group yet the results were more satisfactory than in the staphylococcus cases which showed extensive foci of osteomyelitis. Therefore, this small group of cases with their possibilities for early healing should be recognized.

Only one case in the entire series presented a complete bony ankylosis. This was in a ten year old with a streptococcus infection. There were six other cases of the streptococcus group which showed ankyloses, but of the fibrous type. None of the staphylococcus group went on to a complete bony fusion, even in those cases which were observed up to twenty five years.

Eighteen cases were found to have been dislocated at some time in the course of the disease. This was either from the lack of adequate protection or due to the severe destruction of the epiphysis or the neck, or both. This complication in many cases was preventable.

Of the six resections in the staphylococcus group four were successful in obliterating the chronic infectious process, while one died of postoperative shock, and the last continued to drain because of an incomplete operation. Of the four successful cases, two were healed and had a stable joint with 50 per cent of normal motion one year after the operation, the third was healed but had a flail joint, and the fourth was healed with a fibrous ankylosis.

SUMMARY AND CONCLUSIONS

The results of this investigation confirm the work of such writers as Phemister¹ and Caldwell² on the pathology of this type of joint disease. The study of the joint changes from the onset, in a fairly large number of cases indicates that all streptococcus hemolyticus and about 25 per cent of the staphylococcus infections belong to the so-called primary type of joint infections, while the majority of staphylococcus cases arise as a true osteomyelitis of the bones entering into the joint structure. Our data do not reveal the presence of a true epiphyseal localization in streptococcus hemolyticus and staphylococcus aureus and albus infections, neither does the literature show conclusive evidence. I, therefore, question its occurrence.

A broader point of view which includes not only infants but all age groups in the primary classification, especially all streptococcus hemolyticus cases, will do much to bring up the per cent of good recoveries in children and adults if adequately managed.

Diagnosis of hip joint sepsis is facilitated by aspiration of the suspected cases, it saves time in arriving at a correct interpretation of the symptoms and signs, and readily rules out the serious, non purulent cases.

Early incision and drainage are imperative to preserve the joint in these purulent cases. Operations upon the intra-articular bony structures during the acute stage are not necessary if good drainage of the capsule is established. The occasional case of an abscess outside of the capsule of the hip joint does not present any unusual difficulties.

Protection of the joint throughout the course

of the disease against the complications of dislocation and pressure necrosis of the epiphysis is a simple but most valuable means of preventing severe destruction. It should never be omitted.

The practice of waiting long periods for the staphylococic joints to develop bony ankyloses should be abandoned, since this study shows that complete bony ankylosis is a rare occurrence. Therefore, resection of the infected parts and reconstruction of the joint, after the

acute stage has subsided, offer much to the secondary staphylococcus types in relieving the long-continued suppuration and providing a stable and useful joint.

REFERENCES

1. Phemister D. B. Pathology and treatment of pyogenic arthritis. *Pennsylvania M J* 32: 62 (Nov) 1928.
2. Moulouquet, P. Radiography of lesions of acute arthritis of the hip. *J de radiol et d'electrol.* 10: 115 (March) 1926.
3. Caldwell Guy A. Acute suppurative conditions of the hip joint. *J. A. M. A.* 98: 37 (Jan 2) 1932.

THE NEW HAMPSHIRE MEDICAL SOCIETY

THE ONE HUNDRED AND FORTY-FOURTH ANNUAL MEETING

Hotel Carpenter, Manchester, N H

Tuesday and Wednesday, May 7-8, 1935

ALL meetings will be called to order promptly at the stated hour—Standard Time.

The first meeting of the House of Delegates will be held Monday evening, May 6, at 7:30 o'clock, Hotel Carpenter, and subsequent meetings will be in the same place.

The Scientific Sessions will open promptly at 10:00 o'clock A M, Tuesday, with General Meetings forenoon and afternoon, Tuesday and Wednesday.

Wednesday evening, May 8, Banquet 6:30 o'clock, Hotel Carpenter. Tickets, \$2.00 each.

OFFICERS FOR 1934-1935

President

Frederic P. Lord, Hanover

Vice-President

Clifton S. Abbott, Laconia

Secretary-Treasurer

Carleton R. Metcalf, Concord

Councilors

	Term Expires
Henry H. Amsden, Merrimack County	1935
Clarence O. Coburn, Hillsborough Co	1935
Abram W. Mitchell, Rockingham Co	1936
John A. Hunter, Strafford County	1936
Richard E. Wilder, Coos County	1937
Charles E. Smith, Carroll County	1937
Clifton S. Abbott, Belknap County	1938
Arthur T. Downing, Grafton County	1938
Arthur A. Pratte,* Cheshire County	1939
Emery M. Fitch, Sullivan County	1939

Trustees

Alpha H. Harriman, Laconia	1935
Henry O. Smith, Hudson	1936
Thomas W. Luce, Portsmouth	1937

*Deceased.

Delegate to A M A

Deering G. Smith, Nashua

Alternate Delegate

Emery M. Fitch, Claremont

Necrologist

Clarence E. Dunbar, Manchester

HOUSE OF DELEGATES

The President, ex-officio
The Vice-President, ex-officio
The Secretary-Treasurer, ex-officio

Belknap County

Richard W. Robinson, Laconia.
John R. Perley, Laconia

Carroll County

William J. Paul Dye, Wolfeboro
Edwin C. Remick, Tamworth

Cheshire County

Osmon H. Hubbard, Keene
George S. Emerson, Fitzwilliam

Coos County

Albert C. Johnston, Gorham
Bruce Kelly, Colebrook

Grafton County

Elmer M. Miller, Woodsville
Leslie K. Sycamore, Hanover

Hillsborough County

Joseph E. Larochele, Manchester
Roland J. Joyce, Nashua
Byron D. Pease, Greenville
Deering G. Smith, Nashua
Clarence E. Dunbar, Manchester

Merrimack County

Henry H Amsden, Concord.
Alexander A Beaton, Franklin.
Warren H Butterfield, Concord

Rockingham County

Cleon W Colby, Exeter
Laurence R Hazzard, Portsmouth

Strafford County

Harry O Chesley, Dover
Jerrimah J Morin, Rochester

Sullivan County

Barton D Thorpe, Newport.
Charles E Buchanan, Claremont.

MONDAY, MAY 6, 7 30 P.M.

Hotel Carpenter

HOUSE OF DELEGATES

Speaker, Henry C Sanders, Jr., Claremont
Vice Speaker, James B Woodman, Frank
lin Falls

Order of Business

(Subject to Approval of the House)

Roll Call
Minutes of latest meeting
Appointment of Committees.
Reports of Officers
Reports of Standing and Special Committees
New Business.
Report of Committee on Nominations
(First business of second day)
Election of Officers
New Business.
Unfinished Business

Delegates to N E States Meetings

Maine Lewis C Aldrich, Jefferson, Peter J
Doyle, Dover
Vermont John A. Hunter, Dover, John M
Page, Littleton
Massachusetts Herbert B Messinger, Frank
lin, William J Paul Dye, Wolfeboro
Rhode Island H Edward Siske, Glencuff
Benjamin E Sanborn, Manchester
Connecticut Earl J Gage, Laconia, Frederick
S Gray, Portsmouth

STANDING COMMITTEES

Advisory Committee on Jurisprudence

Olifton S Abbott, Belknap County, Fred E
Clow Carroll County, Osmon H Hubbard,
Cheshire County Joseph J Cobb, Coos
County, Arthur T Downing, Grafton Coun
ty, David W Parker, Hillsborough Coun
ty, Robert J Graves, Merrimack County,
Thomas W Luce, Rockingham County,

Louis W Flanders, Strafford County,
Henry C Sanders, Jr., Sullivan County,
Carleton R Metcalf, Concord, Chairman

Amendments to Constitution and By Laws

Henry O Smith Fred E Clow, Thomas W
Luce

Control of Cancer

George C Wilkins, Howard N Kingsford,
George F Dwinell

Lay Health Organizations

Frank E Kittredge (1935), Carleton R Met
calf (1936), Emery M Fitch (1937), Ezra
A. Jones (1938), Robert B Kerr (1939)

Medical Education and Hospitals

John P Bowler (1935), Deering G Smith
(1936), Robert J Graves (1937)

Mental and Social Hygiene

Charles H. Dolloff, Benjamin W Baker, Charles
A Weaver

New England Medical Council

Frederic P Lord, President Carleton R. Met
calf, Secretary Treasurer, Thomas W
Luce (1935), David W Parker (1936),
Harry O Chealey (1937)

Public Relations, Public Policy and Legislation

Samuel T Ladd, John F Gile, Charles Dun
can, the President, the Secretary Treasurer

Publication

Carleton R. Metcalf, Henry H Amsden War
ren H Butterfield.

Scientific Work

Carleton R Metcalf, Frederick P Scribner,
Richard W Robinson

Tuberculosis

Robert B Kerr, Robert M Deming, Arthur L
Wallace

SPECIAL COMMITTEES

Advisory Committee on Medical Relief

Robert J Graves, John P Bowler, Clarence O
Coburn.

Child Health

Colin C Stewart, Jr, Travis P Burroughs,
Lloyd H Cogswell

Maternity and Infancy

Robert O Blood, Benjamin P Burpee Chester
F McGill

Medical Liability

Fred E Clow, Deering G Smith, Richard W Robinson

ANNOUNCEMENTS

All meetings will begin promptly Standard Time

Every member is requested to register and receive a badge before entering the General Assembly Hall. Please present your membership card when you register.

During the discussion of papers, the speakers will please announce their names plainly for the benefit of the stenographer, and then walk forward to the platform so that the audience and the stenographer may plainly hear what is said.

Discussion of papers is open to all members and guests of the Society. It is not limited to those named on the program.

Ladies of visiting members are cordially invited to visit Manchester during the State meeting and are urged to attend the banquet on Wednesday evening.

Members of the resident Ladies' Committee will be in attendance at headquarters to render such services as may be desired by the visiting ladies.

As heretofore, the usual exhibition of x-ray apparatus, books, surgical appliances, drugs and foods will be held. Application for space should be made to Dr George F Dwmell, Manchester.

Please visit the exhibits

TUESDAY, MAY 7, 10 A M,
Standard Time

GENERAL MEETING

- 1 *Call to order by the President* Frederic P Lord, Hanover
- 2 *Invocation* Bishop John B Peterson, Manchester
- 3 *Address of Welcome* Mayor Damase Caron, Manchester
- 4 *Report of Committee on Arrangements* George T Sheehan, Chairman, Manchester
- 5 *Congenital Pyloric Obstruction* Chester F McGill, Portsmouth
Discussion opened by Benjamin P Burpee, Manchester, E L Levine, Portsmouth
- 6 *Constipation* Fred E Clow, Wolfeboro
Discussion opened by Edward C Batchelder, Dover, Richard W Robinson, Laconia
- 7 *Amoebiasis in a Rural Community* Frank H Connell, Hanover
Discussion opened by Norman W Crisp, Nashua Harry T French, Hanover

TUESDAY MAY 7, 2 P M
Standard Time

- 1 *Presentation of 50-year Membership Gold Medal to Edward H French, Potter Place*
- 2 *Introduction of Doctors who have been in practice 50 years*
Louis W Flanders, Dover
Frank E Kittredge, Nashua
Frank S Lovering, Moultonboro
William S Manuel, Portsmouth
Edward E Twombly, Colebrook
Ellen A Wallace, Manchester
- 3 *The President's Address* Frederic P Lord, Hanover
- 4 *Symposium on Obstetrics*
Marion F Eades, Boston, Mass Antepartum Care
Frederic C Irving, Boston, Mass Mechanics of Delivery (especially as it relates to intracranial hemorrhage)
Foster S Kellogg, Boston, Mass Postpartum Infections
Richard S Eustis, Boston, Mass Care of the Newborn Infant
Open discussion

WEDNESDAY, MAY 8, 10 00 A M
Standard Time

- 1 *Reception of Visiting Delegates*
- 2 *Bronchoscopy* John A Coyle, Hanover, Leslie K Sycamore, Hanover
Discussion opened by Adolphe J Provost, Manchester, Robert M. Deming, Glencliff
- 3 *Treatment of Burns* Grover C Penberthy, Detroit, Mich
Discussion opened by Walter H Lacey, Keene, James W Jameson, Concord
- 4 *Nutritive Failures as a Clinical Problem* James S, McLester, Birmingham, Alabama
President-Elect, American Medical Association.

WEDNESDAY, MAY 8, 2 P M
Standard Time

- 1 *Introduction of New President*
- 2 *Medical Economics of 1935* Nathan B VanEtten, New York City, Vice-Speaker, House of Delegates, American Medical Association
Discussion opened by Timothy F Rock, Nashua, Carleton R Metcalf, Concord
- 3 *Bright's Disease* Harold E MacMahon, Boston, Mass
Discussion opened by A Philip LaFrance, Laconia, Clarence O Coburn, Manchester
- 4 *Treatment of Skull Fractures* Harry E. Mock, Chicago, Illinois
Discussion opened by Emery M. Fitch, Claremont, Herbert L Taylor, Portsmouth
- 5 *Report of House of Delegates*
- 6 *Report of Trustees*
- 7 *Installation of Officers*

WEDNESDAY EVENING, MAY 8, 6 30 P.M.
Standard Time

THE BANQUET

Anniversary Chairman

John F. Gile, Hanover

Guest Speakers

His Excellency, H. Styles Bridges, Governor of New Hampshire

Dr. Frederic P. Lord, President N. H. Medical Society

Dr. James S. McLester, President-Elect American Medical Association

Levin J. Chase, Esq.

COMMITTEE ON ARRANGEMENTS

General Chairman—George T. Sheehan

SUB-COMMITTEES

Location—Alexandre Barbeau.

Program—Daniel J. Sullivan

Reception—George V. Fiske.

Banquet—Walter A. Bartlett.

Exhibition—George F. Dwinell

Finance—Elmer J. Brown

Publicity—Murray H. Towne

Hospital—Damase Caron

List of Commercial Exhibitors at the time of going to press

Bard Parker Company, Inc., New York
Bilhuber Knoll Corp., Jersey City, N. J.
Elmer N. Blackwell, Portland, Me.
Boss & Seuffert Co. Inc., Providence, R. I.
Otis Clapp & Son, Boston, Mass.
Campbell X-ray Co., Boston, Mass.
Canada Dry Ginger Ale, Inc.
Davies, Rose & Co., Ltd., Boston, Mass.
The Denver Chemical Mfg. Co.
George C. Frye Co., Portland, Me.
General Electric X-ray Corp., Boston, Mass.
Hartford Accident & Indemnity Co., G. Allen

Putnam Agency

H. P. Hood & Sons, Inc., Manchester
Horlick's Malted Milk Corp.
Hynson, Westcott & Dunning, Baltimore, Md.
Lederle Laboratories, Inc., New York, N. Y.
E. F. Mahady Co., Boston, Mass.
Mellin's Food Co., Boston, Mass.
The P. J. Noyes Co., Lancaster
The E. L. Patch Co., Boston, Mass.
R. J. Strassenburg Co., Rochester, N. Y.
Surgeons' and Physicians' Supply Co., Boston, Mass.

Tailby Nason Co., Boston, Mass.

Winthrop Chemical Co., Inc., New York, N. Y.

NEW HAMPSHIRE MEDICAL SOCIETY

NEW HAMPSHIRE DENTAL SOCIETY

For the information of the members of these two societies

A special meeting of the House of Delegates of the New Hampshire Medical Society was held in Concord on March 7. Twenty-two delegates were present.

1. DR. DEERING G. SMITH of Nashua, Delegate to the A. M. A. reported on a special session of the House of Delegates of the national organization held in Chicago on February 15-16, 1935. The national body was critical of the Federal Policy on Health Insurance (State Medicine) and of certain passages in the Wagner Bill placing medical functions under exclusive lay control (See *New England Journal of Medicine* for February 21, 1935, page 360).

Dr. Smith offered a resolution which was unanimously adopted. It recorded

- (a) Opposition to compulsory health or sickness insurance or other medical services under governmental control or lay supervision.
- (b) Approval of voluntary plans for medical service under medical supervision, now being tried in many communities in this country.
- (c) Approval of the report adopted by the House of Delegates of the A. M. A.

On March 9 the Secretary sent copies of this resolution requesting a reply to the New Hampshire congressmen in Washington. So far (March 22) no answer has been received from Senator Keyes. Excerpts from the replies of our other three Congressmen are as follows:

FRED H. BROWN: "As is customary in all matters of legislation I do not care to indicate my position until the matter is before the Senate for action."

CHARLES W. TOLBY: "I concur in the conclusions expressed by the House of Delegates of the New Hampshire Medical Society relative to compulsory Health or Sickness Insurance under the Federal plan for social security."

WILLIAM N. ROGERS: "You may rest assured that I shall vigorously oppose them unless and until proper and acceptable alterations are made therein."

2. A program for publicity and organization was adopted. This program provides a firmly knit organization of doctors, dentists, nurses, hospitals and other groups in the State which are vitally interested in this social legislation. At the discretion of the Legislative Committee of the Medical Society these units will be advised to take concerted action in recording their views in Washington or in our own State. Newspaper publicity also is an integral part of the program.

3. The House of Delegates continued in office the Society Committee on State Medical Relief. Dr. Robert J. Graves, Dr. John W. Bowler, Dr. Clarence O. Coburn.

This Committee expects to confer with the new State Commission on Welfare and Relief within a week, to consider the medical phases of Relief. A motion was passed to the effect that any new fee table which might be compiled should be sent to each County Secretary before being definitely adopted.

The Delegates recommended almost unanimously that Relief patients should have a choice of physicians who should receive for their services fees at least as large as those which were obtained under the former Relief set-up, that initial treatment of Relief patients, in emergencies, should be given with out an official order from a local administrative official.

The Delegates were almost unanimously opposed to the employment of County City and Town physicians on salary.

CARLETON R. MITCHELL, Secretary
New Hampshire Medical Society

Concord, N. H., March 22, 1935

MEDICAL PROGRESS

PROGRESS IN GASTRO-ENTEROLOGY FOR 1934

BY E. S. EMERY, JR., M.D.*

THERE have been no outstanding contributions to gastro-enterology during the past year. The subjects about which most interest has been shown are peptic ulcer, amebic dysentery, and cicatrizing enteritis. Our knowledge of peptic ulcer is gradually increasing and it does not require an undue amount of optimism for one to believe that the discovery of its cause is now only a matter of time. The epidemic of amebic dysentery in Chicago created a greater interest in the disease than had hitherto existed in this country. This has resulted in an increased literature on the subject. Since Crohn's article on "Regional Ileitis", there have been reported numerous cases characterized by fibrotic changes in the intestines.

GENERAL TOPICS

Rehfuß has studied by means of the stomach tube the digestion of carbohydrate and protein alone and together. His results show that, so far as the stomach is concerned, there is no incompatibility between protein and carbohydrate digestion even in individuals of markedly different types. He concludes that there is no evidence either in the literature or in his own investigation to lead him to believe that proteins and carbohydrates are incompatible in the stomach.

W. Luntz states that gastro-intestinal allergy although rarely recognized is more frequent than either asthma or hay fever. He says that the patient's history is of the greatest help and that the disease is nearly always associated with other allergic manifestations, especially of the skin. He believes also that bleeding from mucous membranes and subcutaneously is often of allergic origin. He says that, although practically every allergic patient responds with positive skin tests, in only about fifty per cent of the tests are the results dependable. Frequently a skin test will be positive and the patient will be able to eat that food with impunity, and conversely, the skin test may be negative and the patient will be poisoned by that particular food. Therefore, he believes that the patient's own experience with a particular food forms the best and only guide. The foods which give trouble most frequently are wheat, eggs, milk, cocoa, cabbage, orange, white potato, beans and peas. Veal and pork are the meats which most often give an allergic reaction.

Boyden and Rigler have studied the localiza-

tion of pain from the stomach and duodenum. The method of investigation consisted of sending an induction current through a Rehfuß tube, the metal end of which had been converted into an electrode. The second electrode was made of a moist, felt pad sewed to a copper screen and applied to the arm or leg. By means of the fluoroscope it was found that the electrical excitation usually caused a ring contraction of the stomach or duodenum. They found that the site of pain usually shifted with a change in the body posture. At times, however, the pain remains localized in one region after both the electrode and the body posture have been changed. When an area of the skin to which the patient has pointed is anesthetized the pain migrates to a position outside the area, thus revealing cutaneous nerves are involved in spastic contraction of the gut. The authors believe from their experiments that localized visceral pain arising from spastic contraction of the gut is a viscerocutaneous radiation due to splanchnic bombardment of somatic neurones.

Pieri studied the sites of maximal epigastric pain on pressure in 504 gastric patients who had postoperative peptic ulcers, gastric ulcer, juxtapyloric ulcer, concomitant gastric and duodenal ulcer and epithelioma. The author maintains that these conditions present a topography of pain. In ulcers, circumscribed areas of pain are constantly observed on pressure according to the type of ulcer. In gastric ulcer of the lesser curvature the pain is localized at the gastric site, in juxtapyloric ulcer at the pyloric duodenal point. In chronic gastritis there is usually pain on pressure limited to the upper part of the epigastrium with variable areas of maximal intensity. In 100 cases of gastric neurosis, twenty-four showed pain neurosis, fifty-nine asthenic neurosis, and seventeen hypersthenic neurosis. In pain of a neurosis the greatest tenderness was at the celiac point, in asthenic forms of neurosis it was inconstant and occurred at various points, whereas, in hypersthenic neurotics pain was localized in the epigastric angle, frequently associated with pain at the site of the duodenopyloric junction. These points of pain, celiac, medio-epigastric, gastric, duodenopyloric and gastrojejunal have been observed by the author in individual cases of gastric disease. He concludes that the appearance of individual areas of pain may represent a valuable sign not to be overlooked in the diagnosis of some gastropathies and especially in ulcer.

*Emery E. S. Jr.—Associate in Medicine, Peter Bent Brigham Hospital, Boston. For record and address of author see This Vol. 3, 1934, page 694.

Herrick et al have studied the effect of digestion on the blood flow in dogs. They found that meals increase the blood flow in the femoral carotids and jugular veins. This increase in blood flow may be twice what it was in the fasting state. It is found to begin more rapidly after a carbohydrate than a protein meal. It is accompanied by an increase in the pulse rate and possibly in the cardiac output. These findings are of interest in that they may explain the reason for anginal pain after eating.

Thompson et al while studying the absorption of thyroxine from the gastro-intestinal tract have made an observation which may be of general importance. They found that alkali increased the absorption of peptide thyroxine. This suggests that the degree of acidity in the intestinal tract may influence the absorption of partially digested food products.

Rahfs M. E.: Proteins versus the carbohydrates. An inquiry into their gastric digestion. *J. A. M. A.* 193; 1608 (Nov.) 1934.

Link W.: The diagnosis and treatment of two hundred and twenty four cases of gastro-intestinal allergy. *New York State J. Med.* 34: 332 (April) 1934.

Boyd E. A. and Rigler L. G.: Localization of pain accompaning faradic excitation of stomach and duodenum in healthy individuals. *J. Clin. Investigation.* 13: 332 (Nov.) 1934.

Pierl G.: Areas of epigastric pain in disease of stomach. *Follieclino Roma.* 41: 1061 (July) 1934.

Herrick J. P., Esser, H. E., Mann, F. C. and Baltes E. J.: The effect of digestion on the blood flow in certain blood vessels of the dog. *Am. J. Physiol.* 104: 61 (June) 1934.

Thompson, W. O., Wadler S. B., Thompson, P. K. and Dickie, L. F. N.: The effect of alkali on the absorption of a peptide of thyroxine from the gastro-intestinal tract. *J. Clin. Investigation.* 13: 922 (Nov.) 1934.

ESOPHAGUS

Goodall and Hoyt believe that the condition of thoracic stomach is fairly common. Its seeming rarity is due to the fact that cases, especially of the type in which the greater part of the stomach is below the diaphragm, have been overlooked by the roentgenologist and probably by the pathologist. The clinical symptoms are characteristic enough to permit a tentative diagnosis. Dyspnea due to slight exertion and occurring in the latter part of life, as well as unmitigated gastro-intestinal symptoms with negative routine roentgen observations are suggestive of thoracic stomach. The final diagnosis is made by the roentgenologist and thus necessitates a routine determination of the length of the esophagus in all gastro-enteric examinations. The occurrence of ulcer in the thoracic stomach cannot always be demonstrated by roentgenograms.

L. H. Olerf and W. F. Manges report on four teen cases of congenital shortening of the esophagus with stenosis, four of these were found in children and ten in adults. Although there are few cases reported in the literature the authors do not believe that the condition is necessarily rare and they point out that most of the data pertaining to this anomaly have appeared in the British medical literature. No characteristic

symptoms have been reported for this condition. However, the authors state that careful investigation will often reveal that dysphagia was present since birth or more commonly since solid food was added to the dietary. Loss of weight was particularly noticeable in the children, all of whom were underweight and poorly developed. The symptoms were distress, varying from "indigestion" and flatulence, to severe epigastric pain. These occurred shortly after taking food and were present in seven of the adults and one child. The roentgenographic and esophagoscopic changes were those of narrowing of the lumen at the esophagogastric junction. Superficial ulceration of the mucosa was observed in several cases at the level of the stenosis.

To visualize the unobstructed esophagus Wright and Freeman have the subject stand in the right anterior position against an upright cassette and instruct him to take two or three deep breaths. At the end of a forced expiration he is told to swallow two or three mouthfuls of a rather thick barium mixture and as soon as this has been accomplished the roentgen exposure is made, that is, during suspended respiration. This procedure is rehearsed two or three times in order that there may be no misunderstanding and to make sure of satisfactory results. By this method the authors are able to obtain in the majority of cases a satisfactory outline of the filled esophagus.

O. S. Keefer reports on the pleural or pulmonary complications which he has observed in seventeen cases of esophageal carcinoma. These resulted from perforation of the growth in the trachea, bronchi, lungs or pleura. Complications also resulted from obstruction of the air passages by the taking of food, or from perforation of the lung by necrotic metastases in a lymph node. In certain of these cases the symptoms and signs caused by the complications completely dominated the clinical picture.

Ochsner and Owens have reviewed the literature on surgery of the esophagus for complete stricture and report one case of their own. They conclude from this study that anterior thoracic esophagoplasty should be used only in the event of an absolutely impermeable benign stricture or in case of carcinoma in which the tumor has been removed. Whenever possible, instrumental dilatation is the method of choice. They believe that in those cases in which anterior thoracic esophagoplasty has been used, the best results have followed the use of a segment of the colon or by using a loop of the jejunum surrounded by a tube of skin. Of the two methods they believe the latter procedure is to be preferred.

Worms and Leroux Robert report several forms of esophageal involvement resulting from gas intoxication suffered by patients during the War. In one case there was esophageal dilata-

tion which took only twelve to fourteen months to develop. In another, in spite of only mild stenosis, ectasia of the esophagus existed, thus showing the accessory nature of cardiospasm. In a third case, massive dilatation of the esophagus existed in the absence of any stenosis of the cardia. Two other patients showed marked cardiac stenosis with gradual dilation. The authors believe that the dilatation is the primary phenomenon and that the stenosis plays only a secondary rôle in its development. They attribute the primary ectasia to a toxic change of the parietal nervous system. The toxin has a selective action on the nervous system and determines at what level of the esophagus dilatation will occur. Thus stenosis of the cardia of toxic, infectious or inflammatory origin can produce esophageal dilatation due to the weakened wall but this stenosis, while common, is a secondary phenomenon, inconstant and not absolutely necessary to the development of ectasia.

- Goodall H. W. and Hoyt L. H. Thoracic stomach report of five cases. *Arch. Int. Med.* 53: 594 (Apr.) 1934.
 Clerf L. H. and Manges W. F. The congenitally short esophagus. *J. A. M. A.* 102: 2008 (June) 1934.
 Wright H. E. and Freeman, E. B. New method for visualization of unobstructed esophagus. *Radiology* 22: 160 (Feb.) 1934.
 Keefer C. S. The pleural and pulmonary complications of carcinoma of the esophagus. *Ann. Int. Med.* 8: 72 (July) 1934.
 Ochsner A. and Owens N. Anterotheracic oesophagoplasty for impermeable stricture of the oesophagus. *Ann. Surg.* 100: 1055 (Dec.) 1934.
 Worris G. and Leroux Robert J. Esophageal sequelae of intoxication by war gases: pathogenesis of dilatations of esophagus. *Presse méd.* 42: 646 (Apr.) 1934.

STOMACH

Physiological Studies on the Stomach

Giordano and Nicastro have made a study of the gastric nerves to explain a case which they observed with intercostal neuralgia as a result of a gastric ulcer. A fifty-three year old patient had the symptoms of a gastric ulcer although the roentgen signs indicated only a rigidity of the lesser curvature. At laparotomy an enormous ulcer of the lesser curvature was discovered. A gastrectomy according to Polya's technique was performed. In order to interpret the syndrome the authors made a study of the innervation of the stomach. They say that the branches from the great sympathetic and pneumogastric nerves form two plexuses in the stomach, one muscular and the other submucous with motor and sensory nervous endings respectively. The centrifugal fibres of the stomach are divided into two groups, one ascending along the vagus and phrenic nerves and the sympathetic fibres of the aortic plexus, and the other lateral, which at the level of the sixth to the ninth segments of the spinal cord connect with spinal roots carrying somatic sensibility. This fact explains the change of visceral into somatic pain at that level and, since the cutaneous parietal innervation of the intercostal spaces derives from different routes of the sym-

thetic, explains the neuralgia in the authors' case.

Thomas, Crider and Mogan have studied the reflexes involving the pylorus and antrum of the stomach, particularly in relation to gastric evacuation. Observations were made of the pylorus and antrum following stimulation of the duodenum. Duodenal stimulation decreased antral peristalsis even though the authors could not observe any contraction of the pylorus. They believe that this reflex occurs by way of the vagus nerve and that the time of gastric evacuation is influenced more by antial peristalsis than by pyloric control.

As a result of their studies on gastric secretion, C. M. Wilhelmj et al. believe that the total fluid of the stomach is normally composed of two, and at times three separate secretions. They find that the chloride contents of the fundic secretion averages 578 mgm per 100 cc, whereas the chloride concentration of mixed gastric secretion may vary from 340 to 595 mgm per hundred cc, this variation being due to relative admixture of secretion from different parts of the stomach. They believe that experiments on the intact whole stomach cannot be used to prove that chloride concentration varies with the rate of acid secretion.

Quigley, Zetzelman and Ivy have studied the factors involved in the inhibition of gastric motility by fats. They injected various forms of fat intravenously, such as emulsified egg yolk, soap, glycerine and fatty chyle and found that in no instance was the motility of the stomach inhibited. However, they observed that fat coming in contact with the duodenal mucosa very quickly exerted an inhibitory effect on gastric peristalsis. Therefore, they conclude that fat must come in contact with duodenal mucosa in order to influence the stomach motility and that this effect is due to a humoral mechanism.

Owing to the renewed interest in the neurogenic etiology of peptic ulcer there has been a large amount of work done on the possible influence of the central nervous system on the stomach. Ferguson, McGavran and Smith have studied the effect of pilocarpine on the gastric acidity in monkeys. They administered this drug intraventricularly, intravenously and subcutaneously, using as a standard of dosage 65 mgm per kilogram of body weight. When given in large enough doses, the pilocarpine produced complete loss of free acidity with lowering of the total acidity. It did not affect the total chlorides. The fact that the action was abolished by the use of atropine was evidence that the effect was due to the influence of the drug on the nerves. (Of course the dosage used was far in excess of anything that could be utilized in a clinical way.)

It has been generally recognized since total gastrectomy has been more generally used in

clinical medicine that removal of the stomach results in an increased elimination of fat and nitrogenous substances in the stools. Numerous papers have been published throughout the past year on total gastrectomy most of which do not contribute anything new to the subject. However, Ducuing, Soula and Fränkel give a large and pretty complete bibliography in their article on total gastrectomy, which will be of help to anyone investigating this subject.

- Giordano P. and Nicastro M.: Intercoastal neuralgia in gastric ulcer. *Semana méd.* 41: 1511 (May) 1931.
Thomas J. L., Crider J. O. and Morgan, C. J.: A study of reflexes involving the pyloric sphincter and antrum in their role in gastric evacuation. *Am. J. Physiol.* 105: 633 (May) 1934.
Wilhelm C. M., Horrich, L. C., Neiges I. and Hill, F. C.: The chloride concentration of gastric secretion from fundic pouches and from the intact whole stomach. *Am. J. Physiol.* 108: 197 (Apr.) 1934.
Quigley J. P., Zetzelman, H. J., and Ivy A. C.: Analysis of the factors involved in gastric motor inhibition by fats. *Am. J. Physiol.* 105: 643 (June) 1934.
Ferguson, J. H., McGavran, J., and Smith, L. R. D.: Pyloric phase and gastric acidity in monkeys. *J. Physiol.* 83: 1 (Aug.) 1934.
Ducuing J.; Soula, C. and Fränkel R.: Total gastrectomy in man. *J. de chir.* 44: 176 (Aug.) 1934.

Achlorhydria

Hurst states that without gastritis there is no achlorhydria but that gastritis does not cause achlorhydria unless the patient is predisposed by having the hyposthenic gastric constitution. Gastritis in the presence of the hypersthenic gastric constitution may lead to duodenal ulcer and gastric ulcer and a gastric ulcer may become malignant but achlorhydria does not develop. It is the conjunction of the apparently trivial causes of gastritis with the hyposthenic gastric constitution which leads to achlorhydria and the conjunction of these with the constitutional predisposition to cancer which leads to carcinoma of the stomach. It is gastritis which causes achlorhydria, and gastritis, not achlorhydria, which causes pernicious anemia and subacute combined degeneration of the cord and predisposes to carcinoma of the stomach. The prophylaxis of gastritis is the prophylaxis of these diseases. One may therefore look forward to the time when the prevention of gastritis, and when prevention fails, its early recognition and adequate treatment will lead to the early disappearance of carcinoma of the stomach.

- Hurst, A. P.: Clinical importance of achlorhydria. *Brit. M. J.* 2: 665 (Oct.) 1934.

Hematemesis

F. F. Hellier has made an analysis of 303 cases of severe hematemesis, 202 of which were due to ulcer, fourteen had a splenic anemia, ten cirrhosis of the liver and five carcinoma of the stomach. Seventy-two were of doubtful origin. Of the fourteen cases of splenic enlargement there was no evidence of a primary cirrhosis of the liver. The mortality in cases in which a diagnosis of ulcer could justifiably be made was

thirteen per cent in men and twelve and five tenths per cent in women.

- Hellier F. F.: Etiology and mortality rate of hematemesis. *Lancet.* 7: 1271 (Dec.) 1934.

Vomiting

Siwe believes that in the periodically recurring attacks of vomiting occurring in childhood with acetoneuria, there exists an hepatic dysfunction with increased elimination of the products of metabolism, among them ketone bodies. This disturbance which resembles that in carbohydrate deficiency or in an excessive, one-sided fat diet, cannot be due to a glycogen deficiency for epinephrine mobilizes a normal quantity of sugar in the blood. During the attacks of vomiting the blood sugar is not necessarily reduced and in the cases observed by the author it is not below the values that are found in healthy children after fasting. The vomiting shows no regular and direct relation with the values of blood sugar or the acid elimination. Administration of epinephrine as well as of sugar always exerts a favorable influence on the general condition and in some cases the predisposition to vomiting is likewise reduced with medication of epinephrine. The administration of sugar, if given repeatedly after suitable intervals, may have a curative effect. During the attack free intervals a ketogenic diet reveals no disturbance in the hepatic function but in two of nine cases it was possible to produce typical attacks with such a diet. The liver reacts normally also to sugar tolerance tests during the symptom free intervals. It is significant for the clinical course that attacks nearly always are preceded by premonitory symptoms. The attention of the parents and of the patients should be called to these signs for, if sugar is given early enough the attacks of vomiting can be prevented. The fact that children with acetoneuric vomiting frequently have an aversion to sweets and show a preference for fatty foods is of especial interest. (Siwe's findings are of interest from a clinical point of view but it is extremely difficult to be sure that the functional disturbance which he has described in the body chemistry is due to a dysfunction of the liver.)

Also Schmidt and Herold believe that there is evidence of hepatic dysfunction in hyperemesis gravidarum. They tested the hepatic functions of twenty-one pregnant women with hyperemesis. The outcome of the galactose test indicated a disturbance in the carbohydrate metabolism namely a reduced assimilation capacity. The xantho protein reaction revealed a disturbance in the intermediate protein metabolism characterized by the presence of aromatic amino acids. The course of the direct, and the quantitative values of the indirect, bilirubin determination disclosed an impairment of the

hepatobiliary pigment metabolism. Moreover, it seems probable that the increased porphyrin elimination in the urine was the result of a disordered hepatic function. Although the functional tests of the liver were not all simultaneously positive, they frequently ran parallel with the severity of the clinical aspects or even preceded them. The authors think that these tests are valuable in the estimation of the individual case and aid in deciding for the interruption of pregnancy.

Slive S. A. Periodic vomiting during childhood. *Ztschr f Kinderh* 56 98 (Feb) 1934

Schmidt H. R. and Herold L. Testing of hepatic functions in hyperemesis gravidarum. *Arch f Gynäk* 156 463 (Apr) 1934

Unusual Case

Stone and Owings report a case of perforation of the stomach by a fishbone because of its great rarity. They were able to find only one other case in the literature which actually paralleled their own. The patient had sharp pains in the upper abdomen six months previously. He showed evidence of considerable loss of weight and there was a firm, irregular tender mass in the epigastrium and fluid in the abdomen. Before operation the patient appeared to be a case of carcinoma of the stomach.

Stone H. B. and Owings, J. C. Perforation of the stomach by a fishbone. *Am. J Surg* 25 180 (July) 1934

(To be Continued)

A MENTAL HYGIENE CATECHISM*

1 What is Mental Hygiene?

Mental Hygiene is the wise application of the knowledge of psychiatry and psychology to the prevention or amelioration of social problems.

2 What is Psychiatry?

The treatment and study of mental diseases and abnormalities.

3 What is Psychology?

Systematic knowledge and investigation of the genesis, powers, and functions of the mind.

4 What is the mind?

The mind is the brain in action.

5 What factors produce mental disease and abnormalities?

Inheritance, disease, maldevelopments and injuries involving an individual before, during, and after birth, harmful teaching and training, and environmental stresses and strains.

6 Who should be interested in and utilize mental hygiene?

Physicians, lawyers, legislators, teachers, social workers, nurses, parents, employers, and individuals desirous of maintaining or regaining mental health.

7 Where should mental hygiene be applied?

In our hospitals, courts, schools, colleges, industries, and homes.

8 How should the ideals of mental hygiene be applied?

Through the combined cooperating activities of doctors, lawyers, legislators, teachers, social workers, nurses, parents, employers, and individuals desirous of maintaining or regaining mental health.

9 What pitfalls are to be guarded against in practicing mental hygiene?

Action based on inadequate study and knowl-

edge, confusion between knowledge and theory, empirical dogmatism as to cause and treatment.

10 What are the aims and purposes of the Massachusetts Society for Mental Hygiene?

By lectures, publications, and conferences, to disseminate through the community knowledge regarding the maintenance and recovery of mental health, and the avoidance of mental disease and social maladjustments, to strive to act as a clearing house of information regarding agencies serving in this field of medicine and social endeavor, and to promote research work to add to our knowledge. The work is state-wide.

11 By whom is the work of this Society carried on?

By a medical director, educational secretary, and office staff, controlled and advised by Officers and an Executive Committee elected by a Board of Directors who are chosen by members of the Society. There are four District Advisory Committees which assist in the state-wide work.

12 How is the Society supported?

By funds from a small endowment and by contributions from individuals and foundations. It is a member of the Emergency Campaign of 1935.

13 Can the Society at the present time meet the demands made upon it?

No. Because it believes in maintaining a balanced budget, and cannot enlarge its activities unless and until its income increases.

14 Why is this Society especially worthy of your support?

Because it not only strives to help individuals to avoid maladjustments, suffering, and disease, but it also helps other social agencies to function with greater efficiency and better and more lasting results by greater understanding of the mentalities and personalities of the individuals with whom they deal—*Monthly Bulletin* published by the Massachusetts Society for Mental Hygiene.

*Read by Dr. Henry B. Elkind, Medical Director, Massachusetts Society for Mental Hygiene, at a meeting at the Copley Plaza, January 10, 1935, under the auspices of the Emergency Campaign of 1935.

CASE RECORDS

of the

MASSACHUSETTS GENERAL
HOSPITALANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.

CASE 21151

PRESENTATION OF CASE

A nineteen year old single American school girl entered complaining of heart trouble.

Seven years before entry, at the age of twelve a systolic heart murmur was found on routine school examination. This murmur had been present since then and had increased in intensity. She felt perfectly well although she was advised to take things easy. Three years before entry, while living in New York, she was given some digitalis which upset her. She was well until three months before entry, when she noticed that she was becoming slightly exhausted. While in swimming two weeks later she became quite exhausted and her heart was rapid and irregular. A physician found her liver congested and put her on digitalis. Her pulse rate gradually dropped from 140 to about 80 on one and a half grains of digitalis a day. She had occasional nausea and disturbances in vision. She remained in bed most of the time and continued with the digitalis.

Physical examination by her physician ten days before entry showed a fairly well-developed and nourished nervous young girl. The chest was negative. The maximal apex impulse was felt in the sixth interspace, 11 centimeters to the left of the midsternal line and 4 centimeters beyond the midclavicular line. The sounds were of good quality. P₂ was accentuated. Both in the erect and recumbent positions a loud blowing systolic murmur was heard at the apex and a moderate one in the pulmonic area. A moderate middiastolic rumble was heard and a slight middiastolic thrill felt at the apex. No friction rub was heard. There was absolute arrhythmia. The pulse was small and variable. The abdomen was soft. The liver was felt two finger breadths below the right costal margin. The spleen was not felt. The knee jerks were active. The apex pulse was 130 the radial 120. The blood pressure was 105/85.

During the week before admission she had become definitely worse. Auricular fibrillation was uncontrolled in spite of full doses of digitalis. Two days before entry the digitalis was discontinued and since then she had become much worse. On the morning of admission she was restless and had not slept for thirty six hours. She complained of right upper quad-

rant and epigastric discomfort, nausea and vomiting.

Her father died of influenzal pneumonia. Her mother and one brother were living and well.

Five years before entry she had an attack of tonsillitis followed by tonsillectomy. There was no history of scarlet fever or diphtheria.

Physical examination upon admission was about the same as when seen ten days before entry. Auricular fibrillation with uncontrolled ventricular rate 145 to 150 was still present. There was a slightly increased venous pressure and a well marked enlargement of the liver, which was very tender.

The temperature was 100°. The respirations were 35.

Examination of the urine showed a specific gravity of 1.012, a slight trace of albumin, an occasional white blood cell and red blood cell, numerous bacteria and hyaline casts. The blood showed a red cell count of 4,250,000, with a hemoglobin of 75 per cent. The white cell count was 33,500, 85 per cent polymorphonuclears.

She was given sedatives, fluids and digitalis very cautiously. A surgical consultant found no evidence of any intra abdominal surgical lesion. She continued to be very sick while in the hospital, with a temperature ranging between 100° and 103° and rapid fibrillation, the rate being around 160 at the apex. She rapidly failed and died on the fifth day. Rales were heard at the left base a few days before death.

NOTE: An electrocardiogram showed auricular fibrillation, rate 162, inverted T₂ and T₃ and slight right axis deviation.

DIFFERENTIAL DIAGNOSIS

DR. RICHARD C. CABOT: I take it no edema of the lungs was present as none is mentioned.

"There was no history of scarlet fever or diphtheria" and no history of rheumatism, I take it.

I do not know why the surgeon was called. It is not obvious in the case. We do not ordinarily call a surgical consultant for every patient with a tender liver with heart disease. There must have been something else in their minds. I am wondering what. There is no evidence in this record.

"Rales were heard at the left base a few days before death." That makes me still more sure that they were not there when she came in, which is certainly a striking and surprising feature.

There are two points to discuss first, what was the underlying, presumably long standing, cardiac lesion, and secondly, the cause of death, which I think was quite certainly not that long standing lesion. The long standing lesion she being a young woman, though without a rheumatic history, I think we may assume is rheumatic heart disease. The general figures of rheumatic heart disease show that much the com-

monest lesion found postmortem is mitral stenosis and, therefore, entirely independent of the physical signs I should make that diagnosis just on general statistical possibility in a case presumed to be rheumatic. But the physical signs are perfectly consistent with that. She had for many years a systolic murmur, presumably from a mitral lesion which in the beginning may have been a purely regurgitant lesion and which as the years went on had become stenotic as well as regurgitant.

I have no doubt that this was present at the end, but it seems quite clear that she did not die of it. That is the point I have already referred to, the lack of râles in the lungs. If she had the failing heart that carries a person off with passive congestion it certainly would have shown in the lungs or legs or both. She has been in bed, which has some bearing on this, but still I think the backs of the lungs of a person in bed certainly should have shown râles if she was reaching her end by passive congestion and congestive heart failure.

I believe that in heart disease as in diabetes the crisis is brought about most often by infection and not by mechanical overstrain. In the old days we used to be taught about a series of failures of compensation in heart disease depending upon overexertion. I remember in the old days in the Out-Patient Department watching this and being disturbed because I often could not get a history of unusual exertion when the heart had gone to pieces. I now believe that the failures were due to infection and I believe it was an acute infection of some kind that killed this patient with chronic heart disease. In other words if she had not got the infection she might have been alive to-day so far as her chronic lesion is concerned.

The interesting question and the difficult question which I cannot answer with any certainty is *what* acute infection killed this girl.

(a) It may perfectly well have been an acute pericarditis. No friction rub was heard. No friction rub is heard in a very considerable proportion of cases coming to autopsy with acute pericarditis. No textbook that I know, has made this clear. We diagnose only one out of five rightly and four out of five wrongly. It is often diagnosed on the basis of friction rub and the pathologist finds the pericardium clear, no pericarditis. It is often missed even when we are looking particularly for it and believe it ought to be there, and the pathologist finds it. I have no idea how this is accounted for. Why is it that we do not get a friction rub where there is pericarditis and do where there is no pericarditis? Therefore it seems to me in view of our inability to diagnose acute pericarditis by physical signs that it may be the cause of death or associated with the cause of death in this case.

(b) There may have been acute endocarditis

at autopsy on top of the chronic process. That seems to be quite probable. There is nothing against it. We have no evidences of embolism, but they do not need to be present. She had continuous fever for at least five days in the hospital, and presumably for some time outside it. She had a leucocytosis of thirty-three thousand five hundred which in this case cannot be accounted for, I believe, by anything except an acute infection.

If she had an acute endocarditis it would naturally be on the mitral valve on top of the old process or associated with it. It might be also on other valves without our finding it out on the tricuspid or on the aortic as well. It should be added that she might perfectly well have some other chronic lesion besides the mitral stenosis. In my belief it is quite impossible to make a diagnosis of tricuspid stenosis. She might have had that as well as the mitral lesion and we should not be any the wiser. It should be mentioned then as one of the possibilities in the postmortem.

(c) She may have had embolic coronary thrombosis due to the endocarditis. I do not know anyway to rule that out. I think we more and more believe these coronary blocks are the cause of acute breaks in compensation which until late years were not diagnosed as anything except mechanical break, that is, a great many breaks that we used to diagnose as failing compensation due to mechanical causes are, I believe, really due to coronary thrombosis.

(d) She may perfectly well have some acute infection outside the cardiovascular system. I have discussed those inside it because they are notoriously common there as cause of failing compensation and death. But it is perfectly conceivable that there is an infectious process somewhere else. All we can say is that there is no evidence of it in the history or physical examination.

There is nothing to make us think of disease in the kidney. I suppose there is a certain amount of passive congestion there, but the casts and albumin do not make us assume more than that. The liver of course should be congested. It gives us the only definite sign of passive congestion that we have. Any reason to suppose infection in the liver? I do not see it.

If, then, I were asked, "What inference can we reasonably make from the data on this sheet?" I should say chronic rheumatic heart disease presumably in the mitral, possibly on the tricuspid or others, and complicating that and producing decompensation, an infectious process on the valves, in the pericardium or somewhere else.

DR TRACY B. MALLORY. Dr Bland, perhaps you can give some additional information.

DR E. F. BLAND. I might be able to clarify a few points here. I saw the girl the day she came into the Baker Memorial and observed her

until she died a few days later. The story was essentially as given here, that she had had rheumatic heart disease for a number of years. She was a rheumatic individual. She had passed through three months of poor health which was not definitely explained by anything which we could elicit from the history. She was becoming progressively worse and at the time we saw her here at the hospital she was seriously ill, a very toxic person, almost comatose at times. The presenting signs and symptoms were those in the abdomen, an unusually large and tender liver with other signs of venous congestion, namely, definite swelling of the veins in the neck, although the chest remained clear until almost the end. She ran a little more of a toxic course than is indicated here, her temperature going frequently as high as 102° and 103° . There was nothing really that we could put our fingers on to explain this severely toxic state. The nausea, the vomiting and the severe abdominal pain with considerable spasm we thought was entirely due to the engorged liver and yet we wanted an additional opinion. The surgeon confirmed our impression that it was an acutely tender liver and could find nothing indicating a septic process in the abdomen. In view of our experience both in this hospital and at the House of the Good Samaritan with similar cases, that is young people with known rheumatic background and an unexplained subacute or chronic illness culminating in congestive failure, we always suspect a recrudescence of acute rheumatic fever. We made a clinical diagnosis of acute rheumatic fever in this instance, rheumatic heart disease and probable mitral stenosis. Although the physical signs indicated mitral stenosis and we thought she probably had it, we have been fooled frequently in these cases during the acute illness and the murmurs conceivably might have been due in part to dilatation. Our final impression was that the patient died from a recrudescence of rheumatic fever.

DR. PAUL D. WHITE. I made the physical examination of this girl recorded here ten days before she came in to the hospital, then I had to go to conferences in Washington and did not see her again. Dr. Bland took care of her here. I was surprised at the difficulty with which the ventricular rate in the presence of auricular fibrillation was controlled in this case, in fact it was not controlled. When we find after what we believe to be adequate digitalization that the ventricular rate in the presence of auricular fibrillation remains high we should suspect the presence of thyrotoxicosis or infection. In a young person of this age, we usually find that infection is responsible for the persistence of a high ventricular rate. The size of the heart was out of keeping with the ordinary case of mitral stenosis, and as Dr. Bland has stated, we had been caught a number of times

in the past ten years in the diagnosis of mitral stenosis, but not so often lately, we have become somewhat "wise" to this situation. We have found middiastolic murmurs in patients without mitral stenosis whose hearts are enlarged and dilated as a result of active or even chronic rheumatic heart disease. Therefore in the diagnosis here we stated that mitral valve deformity was undoubtedly present on the basis of the long history and the murmurs, but we were not sure about the degree of stenosis. The lungs were clear in that first examination. The right heart had already begun to fail and that may explain why the lungs were at that time clear of evident edema. The liver was already markedly enlarged at the first examination and that enlargement became more evident later. I would agree that Dr. Cabot and Dr. Bland are perfectly justified in believing that active infection, and probably rheumatic infection, was responsible for death, with or without other complications in a girl who had a severe degree of chronic rheumatic heart disease with mitral involvement.

DR. JAMES H. MEANS. This episode of swimming is of some interest here. A story of three months of ill health is mentioned and, as Dr. Bland points out is interesting also. She may have been having a low grade active rheumatic infection at that time. Then she went in swimming and got exhausted and it seems that the serious part of her illness began then. I think it is the experience of men who work with rheumatic infections to find oftentimes that something of that kind will intensify rheumatic infection. The patient may catch cold and that brings out active rheumatic infection. I wonder if an adequate clinical diagnosis is not simply death from rheumatic carditis. I presume that she had a process that involved the whole heart and caused her death. I think that an infection, which had nothing to do with the heart, although it conceivably could bring about such a picture as Dr. Cabot has mentioned, is much less likely than an active rheumatic infection involving the heart itself. We have a patient in the ward at present that presents a similar picture in many respects. This boy is ill with what we call rheumatic carditis and I think he will die in much the same fashion. He, at the moment, has a pericardial friction rub but, as Dr. Cabot has said, that is not always found even when the pericardium is involved.

DR. WHITE. I would like to add a suggestion why a heart attack occurred while this girl was swimming—that is to be explained as the onset of the auricular fibrillation, she herself felt an abnormal heart beat at that time. Immediately afterwards the doctor found the heart rhythm irregular. The arrhythmia may or may not have had anything to do with the infection—it is not a common accompaniment of such

dozen times in aortic valvular disease and do not remember seeing them in any case that did not have free regurgitation. There was no bacterial endocarditis. There was one very questionable verrucous vegetation of the rheumatic type which might signify an acute process on the aortic valve.

The lungs again were of very great interest, showing a picture essentially similar to that of the preceding case, with scattered areas of hemorrhagic consolidation. Microscopically these are somewhat more interesting than the preceding case because it is evident that they are of varying ages. Certain of the areas are perfectly fresh and show only hemorrhage into the alveoli and the thickening of the alveolar walls which I mentioned in the first case. Incidentally in the immediate neighborhood of these areas the lymphatics are always markedly distended with red cells. In other areas the process is evidently of longer duration, more chronic, and in them there is a rather striking picture the chief characteristic of which is a marked epithelialization of the alveoli. That interested me since the one description of the pathology of this rheumatic pneumonitis which I could make anything out of is that of Fraser* of Glasgow who describes in two cases marked epithelialization of the alveoli. I feel quite certain that this is the same lesion that he has described.

*Fraser, A. D. The Aschoff nodule in rheumatic pneumonia. *Lancet* 1 70 (Jan 11) 1930

In the myocardium again I was unable to find any evidence of fresh myocarditis.

DR MALLORY Again as in the previous case, there is an increase of fibrous tissue most notable immediately around the branches of the coronary vessels but nothing in the way of acute degeneration of the myocardium itself and no Aschoff bodies that we were able to find in three or four routine sections. That does not prove that we might not find them if we cut twenty blocks.

DR BREED What did the spleen show, Dr Mallory?

DR MALLORY It was somewhat enlarged. There were no infarcts.

DR HOWARD B. SPRAGUE I think there is one point that ought to be brought out. He had definite evidence of prolonged conduction time indicating acute carditis, and the striking feature is that in the hundreds of cases that we have seen here and at the House of the Good Samaritan with acute rheumatic pancarditis we have never seen it combined with subacute bacterial endocarditis.

DR CABOT What caused the friction rub?

DR MALLORY He had chronic pleuritis on both sides. We did not find any fresh lesion in the pleura or pericardium.

DR PAUL D. WHITE The change in the T wave might be a toxic thing. I would like to ask Dr. Breed how often he finds clubbing of the fingers in rheumatic heart disease.

DR BREED Not often, but it does occur.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the Jurisdiction of the

COMMITTEE ON PUBLICATIONS

R. I. LEE, M.D. *Chairman* HOMER GAGE, M.D.
R. B. OSGOOD, M.D. R. M. SMITH, M.D.
F. H. LANEY, M.D.

EDITORIAL STAFF

THEO. HUNT, M.D. STEPHEN RUSHMORE, M.D.
JOHN P. BUTTERFIELD, M.D. HENRY ZIMMER, M.D.
GEORGE R. MORT, M.D. BENJAMIN WHITE, PH.D.
FRANK H. LANEY, M.D. HENRY R. VICKS, M.D.
SHIELDS WARREN, M.D. ROBERT N. NYE, M.D.
GEORGE L. TOWSE, JR., M.D. ROBERT M. GREEN, M.D.
C. GUY LANE, M.D. CHARLES C. LUND, M.D.
WILLIAM A. RUCKER, M.D.

WALTER P. BOWERS, M.D. *Managing Editor*

ASSOCIATE EDITORS

GEORGE G. SMITH, M.D. WILLIAM B. BRIDG, M.D.
JOSEPH GARLAND, M.D.

THE NEW HAMPSHIRE MEDICAL SOCIETY

PUBLICATION COMMITTEE

CARLETON R. METCALF, M.D. HENRY H. AMESON, M.D.
WARREN H. BUTTERFIELD, M.D.

THE VERMONT STATE MEDICAL SOCIETY

PUBLICATION COMMITTEE

WILLIAM G. RUCKER, M.D. C. F. DALTON, M.D.
L. H. ROSE, M.D.

SUBSCRIPTION TERMS: \$6.00 per year in advance, postage paid for the United States; Canada \$7.00 per year; \$8.00 per year for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal Office 8 Fenway.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The New England Journal of Medicine 8 Fenway Boston, Mass.

SURGICAL CATGUT SUTURES

SEVERAL years ago Meleney¹ called attention to the presence of contaminated surgical catgut sutures among those manufactured and marketed in this country. This, in a large part, was due to the inadequacy of the tests for sterility which failed to take into account the bacteriostatic influence of the chemicals used in the tubing fluids and which were, thus, useless in detecting contaminated lots. A year later Meleney and Chatfield² described a cultural method which eliminated this difficulty, but which failed to remove or neutralize the bacteriostatic chemicals used by certain manufacturers for primary sterilization of the catgut. Clock³ suggested the use of additional neutralizing solutions and this modified Meleney and Chatfield method has, for the past two years, been available to the manufacturers of surgical catgut. In spite of this fact, Clock⁴ has recently shown that the percentage of manufacturers marketing non-sterile catgut was the same in 1934 as in 1930.

During the five-year period 605 lots comprising 6184 sutures and including twelve American brands were tested. Six brands were uniformly sterile, one had non-sterile lots in two of the years, three in four and two in all five. The percentage of non-sterile lots for a given year ranged from 12 to 100 per cent.

From the above it is apparent that non-sterile catgut is being used constantly by the surgeons in this country. While it is true that the majority of bacteria which contaminate catgut are non-pathogenic anaerobic bacilli, the presence of gas-forming anaerobic bacilli or the relatively more serious tetanus bacilli can never be excluded. Such sutures are a menace, not only to the patient, but also to the surgeon and the hospital.

Ideally, the manufacture of surgical catgut should be under the control of some federal agency, as in the case of biological products. Lacking governmental supervision, it is conceivable that the American Medical Association, through its Committee on Catgut Standards, appointed in 1931, might accept certain brands of catgut, as it has certain drugs and biological products under its Council on Pharmacy and Chemistry. In the absence of official sponsorship, the surgeon or hospital should decide whether the methods employed by their particular manufacturer of surgical catgut conform to those which are known to be adequate.

REFERENCES

1. Meleney, F. L.: How can we insure the sterility of catgut? *Surg. Gynec. and Obst.* 59: 271, 1930.
2. Meleney, F. L., and Chatfield, Isabel: The sterility of catgut in relation to hospital infections with an effective test for the sterility of catgut. *Surg. Gynec. and Obst.* 5: 459, 1931.
3. Clock, R. O.: The fallacy of chemical sterilization of surgical catgut sutures; with particular reference to the use of copper salts, peppermint oil and mercury. *Surg. Gynec. and Obst.* 56: 140, 1932.
4. Clock, R. O.: The present status of the sterility of surgical catgut sutures; with particular reference to American made catgut. *Surg. Gynec. and Obst.* 60: 202, 1935.

CONSERVING THE SCHOOL CHILD'S EYESIGHT

At the present time according to the National Society for the Prevention of Blindness, 6,000 children are enrolled in the 458 sight-saving classes maintained by 145 communities, additional classes however, are needed for about 44,000 other children. These are children with seriously defective vision, actually about 3,000,000 school children in the United States, or one-eighth of the entire school population are handicapped in their education by defective eyesight, appears in the report of a Joint Committee of the National Education Association and the American Medical Association cooperating with the National Society for the Prevention of Blindness.

Farsightedness is the most common defect, astigmatism is next in frequency and nearsight-

edness is third, other eye defects noted being strabismus and conjunctivitis. Factors of importance in these conditions are blurring of the near image to the farsighted child, with headache, nerve strain and fatigue resulting from sustained effort at close work, postural difficulties for the nearsighted, who tends to bring his eyes to his work rather than his work to his eyes, and sensitiveness and self-consciousness to the cross-eyed child, the result of the jibes of playmates and the thoughtless remarks of adults. It cannot be overemphasized that the child with a squint be placed under ophthalmologic care as soon as the defect is recognized.

The major thesis of the report is that the school's provision for eye health should include medical supervision and special educational facilities for "children with such serious eye difficulties that after everything possible has been done for them they either cannot see well enough to profit by the usual school equipment or may be harmed by so doing." This "partially seeing" group should carry on their close eye work in sight-saving classes under the direction of specially trained teachers, but join their normally seeing companions in all other school activities.

The same general subject is differently treated in a report from the Westinghouse Technical Press Service—directed, for some reason or another, mainly to optometrists—on the problem of adequate indoor lighting for reading and studying. In this report the value of the semi-indirect table lamp, standing high so that ample light is distributed evenly over the desk, and shedding extra illumination to the ceiling to provide a good level of lighting throughout the room is stressed. A 75 or 100 watt lamp is considered necessary to provide comfortable reading or study conditions.

AN AUTOPSY SERVICE FOR FATAL CASES OF DIABETES MELLITUS

A CLEAR understanding of the pathology in any disease is a great step toward its ultimate conquest. Although much is known regarding diabetes, the widespread use of insulin, the greater recognition of the disease and the prolongation of life of its victims have definitely altered conditions since the last careful study of diabetic pathology.¹

Fortunately further investigation of the pathology of the disease and its complications has been undertaken by the George F. Baker Clinic of the New England Deaconess Hospital and the Proctor Fund of the Harvard Medical School. As an initial step, an autopsy service has been established as described elsewhere in this issue² available for fatal cases of diabetes

mellitus to all registered physicians within twenty-five miles of Boston.

REFERENCE

- 1 Warren S. The Pathology of Diabetes Mellitus Philadelphia 1930

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

COONSE, G. KENNETH A.B., M.D. Harvard University Medical School 1924 F.A.C.S. Junior Visiting Surgeon, Boston City Hospital. Orthopedic Surgeon, Newton Hospital. Instructor in Orthopedic Surgery, Harvard Medical School. Address 370 Commonwealth Avenue, Boston, Mass. Associated with him are

FOISIE, PHILIP S. A.B., M.D. Harvard University Medical School 1924 Assistant in Surgery, Boston City Hospital Out Patient Department. Instructor in Surgery, Tufts College Medical School. Address 520 Commonwealth Avenue, Boston, Mass. And

ROBERTSON, HAROLD F. M.B., B.Sc. (Med.) University of Toronto Faculty of Medicine, 1929 Assistant Resident Surgeon, Peter Bent Brigham Hospital. Address Peter Bent Brigham Hospital, Boston, Mass. And

AUFRANC, OTTO E. A.B., B.S., M.D. Harvard University Medical School 1934 Surgical Intern, Boston City Hospital. Address Boston City Hospital. Their subject is "Traumatic and Hemorrhagic Shock, Experimental and Clinical Study." Page 647

SUBBAROW, Y. Ph.D. M.B. University of Madras 1921 Austin Teaching Fellow, Harvard University. Address Biochemical Laboratory, Harvard Medical School, Boston, Mass. Associated with him are

JACOBSON, BERNARD M. M.D. Harvard University Medical School 1929 Research Fellow in Medicine, Harvard Medical School and Massachusetts General Hospital. Address Massachusetts General Hospital, Boston, Mass. And

FISKE, CYRUS H. M.D. Harvard University Medical School 1914 Associate Professor of Biological Chemistry, Harvard Medical School. Address Biochemical Laboratory, Harvard Medical School, Boston, Mass. Their subject is "The Separation of the Substances in Liver Which are Reticulocytogenic in the Guinea Pig and Which are Therapeutically Effective in Experimental Canine Black Tongue." Page 663

KICKHAM, CHARLES J. M.D. Tufts College Medical School 1908 F.A.C.S. Surgeon-in-Chief, Department of Obstetrics, St. Elizabeth's Hospital. Board of Governors, New England Obstetrical and Gynecological Society. His subject is "Ovarian Cyst with Twisted Pedicle in

Girl of Nine Years of Age" Page 665 Address 524 Commonwealth Avenue, Boston, Mass

HUNT GEORGE P. M.D. Harvard University Medical School 1900 Member of Active Medical and Surgical Staff, House of Mercy Hospital Pittsfield, Mass. Chief Visiting Physician Sampson Memorial (Contagious) of the House of Mercy Hospital Licensure of the American Board of Pediatrics His subject is "A Survey of Tonsillectomy and Adenoidectomy in Scarlet Fever" Page 665 Address 34 Fenn Street, Pittsfield, Mass.

HUDSON, HENRY W., JR. M.D. Harvard University Medical School 1925 F.A.C.S. Associate Surgeon, Children's Hospital Assistant in Surgery, Harvard Medical School His subject is "Acute Appendicitis in Children The Challenge of Its Continuing High Mortality" Page 670 Address 66 Commonwealth Avenue, Boston Mass

SLOWICK, FRANK A. M.D. Tufts College Medical School 1927 Orthopedic Surgeon, St. Luke's Hospital, Pittsfield, Mass His subject is "Purulent Infections of the Hip Joint An Analysis of Sixty Cases" Page 672 Address 150 North Street Pittsfield, Mass

EMERY E. S. JR. A.B. M.D. Harvard University Medical School 1920 Associate in Medicine Peter Bent Brigham Hospital, Boston. Instructor in Medicine, Harvard Medical School His subject is "Progress in Gastro-Enterology for 1934" Page 680 Address 310 Longwood Avenue, Boston Mass

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY*

THOMAS ARMY M.D., Chairman, 140 Rock Street, Fall River Mass.	C. J. KIRKHAM M.D., Secretary 524 Commonwealth Avenue, Boston Mass
--	---

IS IT ADVISABLE TO TREAT VARICOSE VEINS DURING PREGNANCY?

There are two indications for treatment of varicose veins of the extremities during pregnancy

- 1 Symptomatic relief
- 2 Presence of infection in veins.

1 The symptoms of easy fatigue, cramps, and heaviness of the limb, associated with swelling and pain on walking which are a complication of varicosities in the normal individual, are intensi-

A series of short selected articles by members of the Section will be published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the Section.

fied during pregnancy. Moreover, many new varicose tributaries develop during the latter months of pregnancy. This whole picture can be greatly ameliorated by treating the varicosities with sclerosing solutions.

2 Phlebitis in varicose veins presents a modification of the situation but probably calls for just as active treatment as do the uncomplicated varices. In the presence of phlebitis in the saphenous trunk, usually initiated in the lower leg and extending upward one of two alternatives may be utilized. The varicose limb above the area of infection may be injected with a resulting sharp chemical sclerosis. This prevents the upward spread of the infective phlebitis and prevents thereby the dissemination of infarcts into the general blood stream. If, on the other hand the phlebitis has already reached the sapheno-femoral opening, involving the whole saphenous trunk then it may be advisable to ligate the saphenous vein close to the sapheno-femoral junction. This should be done cautiously in order not to liberate any clots into the femoral vein. Both these procedures usually have very excellent results.

The best solution available for use in treatment of varicose veins during pregnancy is Sodium Morrhuate 5 per cent. Quinine solutions, for obvious reasons are interdicted. Other solutions, such as salt, salicylate and sugar solutions are either too weak or cause too severe cramps to be of value.

SECOND ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the Committee for the week beginning April 14

Berkshire

Thursday April 18 at 4 30 P.M., at the St. Luke's Hospital Pittsfield Subject Endocrinology (Third Session) Albert C. England, M.D., George S. Reynolds M.D., Chairmen.

Bristol North (Attleboro Section)

Tuesday April 16 at 4 00 P.M. at the Sturdy Memorial Hospital, Attleboro. Subject Cardiovascular Disease (Second Session) William M. Stobbs M.D. Chairman.

Bristol North (Taunton Section)

Wednesday April 17 at 7 30 P.M., at the Morton Hospital Taunton. Subject Obstetrics and Gynecology (Third Session) Arthur R. Crandell M.D., Chairman.

Bristol South (New Bedford Section)

Friday April 19 Holiday—no session.

Essex North

Tuesday April 16 at 4 00 P.M., at the Hotel Bartlett, 95 Main Street, Haverhill. Subject Obstetrics and Gynecology (Third Ses-

sion) Francis W Anthony, M.D., Chairman

Franklin

Wednesday, April 17, at 8 00 P.M., at the Franklin County Public Hospital, Greenfield
Subject Cardiovascular Disease (Second Session) Halbert G Stetson, M.D., Chairman

Hampshire

Wednesday, April 17, at 4 15 P.M., in the Nurses' Home of the Cooley Dickinson Hospital, Northampton Subject Surgery (First Session) Robert B Brigham, M.D., Chairman

Middlesex East

Wednesday, April 17, at 4 00 P.M., at the Melrose Hospital, Melrose Subject Dermatology and Syphilis Joseph H Fay, M.D., Chairman

Middlesex North

Friday, April 19 Holiday—no session

Norfolk (Faulkner Hospital Section)

Monday, April 15, at 4 00 P.M., at the Faulkner Hospital, Jamaica Plain Subject Obstetrics and Gynecology (Third Session) Hugo B C Riemer, M.D., Chairman

Worcester (Milford Section)

Thursday, April 18, at 8 00 P.M., at the Milford Hospital, Milford Subject Surgery (Third Session) Joseph I Ashkins, M.D., Sub-Chairman

Worcester (Worcester Section)

Wednesday, April 17, at 7 30 P.M., in the Nurses' Home of the Worcester City Hospital, Worcester Subject Endocrinology (Third Session) Erwin C Miller, M.D., Chairman

Worcester North (Fitchburg Section)

Friday, April 19 Holiday—no session.

MISCELLANY

PREPAID HOSPITALIZATION

Fifty two hospitals in New York City and suburban areas have adopted the plan of providing three weeks of hospital care for subscribers who pay three cents a day to be applied when needed

The plan will be operative beginning April 15 In studying this and other plans in operation, it is probable that certain modifications may be required in different types of communities The first step should be to form a voluntary committee, with a due proportion of doctors in the membership, to learn the various plans now in operation, analyze local conditions, and create a general sympathetic sentiment favorable to the principles involved

To start such plans without assurance of permanency would be quite certain to prejudice the public against a hospital and its sponsors The great

number of groups engaged in this type of sickness insurance shows that there is an appreciation of the possibilities of this sort of service It is really budgeting against the hazards of illness and in one form or another may prove to be more satisfactory to patients, hospitals, and doctors than any form of compulsory insurance, especially if not conducted for profit and with no cash payments for time lost.

BOSTON HOSPITAL COUNCIL

The following hospitals in Boston have recently formed the Boston Hospital Council

Beth Israel Hospital
Boston City Hospital
Boston Dispensary
Boston Floating Hospital
Carney Hospital
Channing Home
Children's Hospital
Collis P Huntington Memorial Hospital
Evangeline Booth Hospital
Faulkner Hospital
House of the Good Samaritan
Infants' Hospital
Long Island Hospital
Massachusetts Eye and Ear Infirmary
Massachusetts General Hospital
Massachusetts Memorial Hospitals
Massachusetts Women's Hospital
New England Deaconess Hospital
New England Hospital for Women and Children
Peter Bent Brigham Hospital
Robert Breck Brigham Hospital
Roxbury Hospital and Clinic
St. Elizabeth's Hospital

At a meeting on March 11, 1935, the following officers were elected

President Dr Joseph B Howland — To serve 3 years
Vice-President Mr Ingersoll Bowditch—To serve 3 years
Secretary and Treasurer Dr Charles F Wilinsky—To serve 3 years

The members of the Executive Committee are as follows

Dr Nathaniel W Faxon, Chairman, Massachusetts General Hospital—To serve 1 year
Miss Edith I Cox, Robert B Brigham Hospital—To serve 4 years
Dr John H Cunningham, 46 Gloucester Street, Boston—To serve 1 year
Dr Henry M Pollock, Massachusetts Memorial Hospitals—To serve 2 years
Sister Marie, Carney Hospital—To serve 3 years
Dr William D Smith, 264 Beacon Street, Boston—To serve 5 years
Mr Alexander Wheeler, 49 Federal Street, Boston—To serve 2 years
Mr Frank E Wing, Boston Dispensary—To serve 3 years

Dr Marjorie Woodman 21 Bay State Road Boston—To serve 4 years

At a meeting of the Executive Committee on March 18 1935 Miss Margaret H. Tracy who is Executive Secretary of the Boston Health League was engaged to act also as Executive Secretary of the Boston Hospital Council and the administrative office for the new organization is 43 Tremont Street Boston.

The object of the Boston Hospital Council is "to promote intelligent planning and coordination in the field of community hospital service to serve as a forum for the discussion of common problems and as a clearing house for the exchange of information looking to the advancement of service to interpret to the public the functions of hospitals and their place in the community to cooperate with other agencies concerned with health and social problems and such other business as may properly come before the Hospital Council"

The membership of the Boston Hospital Council consists of three representatives from each member hospital one a member of the governing board one a member of the medical staff and the superintendent. This is the first Hospital Council with staff representation. There will also be a representative from the Massachusetts Medical Society the Massachusetts Dental Society the Massachusetts State Nurses Association and five members at large.

CONSTITUTION AND BY LAWS OF THE HOSPITAL COUNCIL OF BOSTON

(Adopted January 30 1935)

ARTICLE I. Name The name of the organization shall be the Hospital Council of Boston

ARTICLE II. Object The object of the Hospital Council of Boston is to promote intelligent planning and coordination in the field of community hospital service to serve as a forum for the discussion of common problems and as a clearing house for the exchange of information looking to the advancement of service to interpret to the public the functions of hospitals and their place in the community to cooperate with other agencies concerned with health and social problems and such other business as may properly come before the Hospital Council.

ARTICLE III. Membership The Hospital membership shall consist of the charter members and such other hospitals as shall be approved by the Council on nomination of the Executive Committee.

Representation The membership of the Council shall consist of

- 1 Member Hospitals each of which shall have three representatives

(a) A representative of the Governing Board

(b) A representative of the Medical Staff and

(c) The Superintendent.

2. A designated representative from the Massachusetts Medical Society Massachusetts Dental Society and the Massachusetts State Nurses Association

3. Representatives at large not to exceed five in number representing the public interest in general as appointed by the Executive Committee

ARTICLE IV. Officers and Executive Committee The officers shall be President, Vice-President, Secretary Treasurer. These officers shall serve for a period of three years and may be re-elected. The officers and nine representatives of the Council elected by the membership shall serve as the Executive Committee. At the first election members shall be elected to serve for one year two years three years, four years five years and thereafter the term shall be five years.

ARTICLE V. Meetings The Annual Meeting shall be held in April. Other meetings shall be held as may be determined by the Executive Committee. Special meetings shall be called by the President at the request of ten representatives.

ARTICLE VI. Elections All officers shall be elected at the Annual Meeting election to be by ballot unless otherwise decided by the membership. The representatives of the organizations in the Council membership shall be elected or otherwise designated annually by their respective organizations and notification of their selection sent to the Secretary of the Council at least seven days prior to its annual meeting.

ARTICLE VII. Duties of Officers and Executive Committee The President shall perform the duties usual to this office and shall appoint all standing and special committees not otherwise provided for. Other officers shall perform the duties usual to their offices.

The Executive Committee shall act for the Council in the interval between meetings and shall report its action to the Council. It shall employ and fix compensation and duties of all paid personnel.

ARTICLE VIII. Dues The dues of the member hospitals in the Council shall be assessed annually and shall not be less than \$10.00 nor more than \$100.00 as the work of the Council may require and the Executive Committee may decide.

ARTICLE IX. Voting In voting on matters concerning hospital policies a majority of the hospital representatives votes will be required for adoption. Such action shall represent the opinion of the Council but shall not bind individual member hospitals.

ARTICLE X. Amendments The Constitution and

Bylaws may be amended at any regular meeting by two-thirds vote of the members present and voting, provided that the proposed amendments were submitted in writing to each member seven days previous to the meeting

CORRESPONDENCE

A SPECIAL AUTOPSY SERVICE

New England Deaconess Hospital

April 5, 1935

Editor, *New England Journal of Medicine*,

To advance the control of diabetes mellitus further, an autopsy service is offered those physicians having fatal cases of the disease occur in their practice. This service is available to all registered physicians within twenty five miles of Boston. It is a part of an intensive study of the pathology of diabetes sponsored by the George F Baker Clinic of the New England Deaconess Hospital and aided by a grant from the Proctor Fund of the Harvard Medical School.

Reports of the findings in each case will be made to the physician in charge, and full credit given him in any scientific reports based on the material. In such cases as the physicians using the service judge proper, the autopsy will be done free. In all others, the minimum charge regarded by the Boston Pathological Society as fair, \$25.00, will be made. Fees will be used to help defray expenses of the work.

For this autopsy service call the Laboratory of Pathology, New England Deaconess Hospital, Aspinwall 4620.

Yours truly,

SHIELDS WARREN, M D

Laboratory of Pathology,

195 Pilgrim Road, Boston, Mass

A COMMON PERIL

Editor *New England Journal of Medicine*,

Two killed two or three hurt and property damage not estimated. This is 'exuberant spirit' in South Boston. To provide a safe outlet for this spirit it is proposed to build gymnasiums. One citizen in this morning's paper is quite piously enthusiastic about it. Let me prophesy that it will take more police than gymnasts to prevent the beneficiaries from smashing the apparatus and throwing it out of the window. Corrective institutions, penal institutions even removing the hide and tacking it upon the barn will have no effect upon this class of offenders. The remedy lies farther back, for these degenerates have no background. The mentality of the people of the United States has been on the decline for years and nobody cares.

A textbook on literary training that I have been reading this winter says 'Remember that fully twenty five per cent of your audience are morons. Years ago Brander Matthews wrote "If you wish your audience to get a thing, you have to tell them that you are going to do it, and while it is being done you

must tell them that you are doing it, and after it is done you must tell them that it is done—and then they won't understand it." Why should this be not true? It is merely a matter of figures with feeble minds having ten or twelve children apiece, and normals having two or three, what is the answer? Let everyone who reads this give five minutes serious thinking to the problem. He will recall at least five couples in his neighborhood who should never have been allowed to marry. We are very careful about breeding hogs and cattle, but human beings can breed "cock eyes," knock knees, idiots and morons, who cares?

For years I have been stressing this matter. I have written to the Boston papers and have been denied a hearing. Not living in New York, Baltimore, Chicago or San Francisco, I cannot contribute to the *Journal of the American Medical Association*. The *Journal* could not live without rural support, but did you ever see a paper in it from Whiffletree, Vermont? We country doctors trot along behind like a bunch of tame rabbits, occasionally stopping to scratch our chins on a bit of stubble or to nibble at a cabbage leaf. Since when have all the brains in the United States been located in the big centres?

If you know any way to awaken the people to this awful peril, please get at it. According to precedent, about four hundred reformers have to be burnt upon the altar before anybody does anything, so the sooner the smoke begins to rise, the sooner the people of this country will realize whither we are drifting.

LOUIS W FLANDERS, M D

Dover, N H,

April 5, 1935

EDITORIAL NOTE We believe in the logic of eugenics, but apparently the great majority of the people of this country are governed by emotions rather than reason.

RECENT DEATHS

McGAFFIGAN — BERNARD FRANCIS McGAFFIGAN, M D, resident physician at Deer Island House of Correction, Boston, died at the Boston City Hospital, April 2, 1935. He was born in the North End of Boston in 1878, and after an education in the parochial schools, studied medicine and graduated from Tufts College Medical School in 1904. He is survived by two sisters and two brothers.

CRAM — JOHN WESLEY CRAM, M D, of Colrain, Massachusetts, died at his home, April 5, 1935. He was born in Deerfield, New Hampshire, in 1858, the son of Alfred and Mary French Cram, and was educated in the local schools, the University of New Hampshire, and graduated in medicine from the University of Vermont College of Medicine in 1888. Before settling in Colrain, he practiced in Jamaica and Halifax both of Vermont, for short periods.

He joined the Massachusetts Medical Society in 1891 and was a Fellow of the American Medical Association. He was past president of the Franklin County Medical Society and had served as consor. He was secretary of the local Board of Health and secretary treasurer of the Colrain Water Board. He was a member of the Mountain Lodge of Masons of Shelburne Falls the Sons of the American Revolution and the State Grange.

He is survived by his widow a son Ralph H. Cram of Agawam and two daughters Mrs. Elwin W. Avery of Penacook, New Hampshire and Mrs. Eugene F. Jeffrey of Los Angeles California.

COFFIN — **FRANK HERBERT COFFIN** M.D. of 91 Emerson Street, Haverhill Mass. died at his home April 7 1935 of angina pectoris. Dr. Coffin was born in 1876 and after attending courses at the Boston College of Pharmacy studied medicine at the Boston University School of Medicine and graduated in 1900. He joined the Massachusetts Medical Society in 1907 and was also a Fellow of the American Medical Association. He was a war veteran and a member of the American Legion. He is survived by a sister Mrs. George A. Hall of Brookline and a nephew Robert A. Hall of Boston.

OBITUARY

RESOLUTIONS ADOPTED BY THE SENIOR STAFF OF THE BOSTON CITY HOSPITAL IN APPRECIATION OF DR. HORACE DAVID ARNOLD

In the death of Dr. Horace David Arnold, the Boston City Hospital loses one of its oldest and most prominent alumni. His life was an unusually varied and useful one.

Doctor Arnold was born in Roxbury in 186* the son of Dr. George J. and Anna E. Arnold the former a well-known surgeon of Boston and for many years a member of the Staff of this Hospital. Doctor Arnold attended the Roxbury Latin School graduating from Harvard College in 1885 and the Harvard Medical School in 1889. He was a member of Phi Beta Kappa. After serving a year as interne on the Second Surgical Service at the City Hospital he was appointed executive assistant and six months later promoted to the position of assistant superintendent in which position he served for one and a half years. His membership on the visiting staff of the hospital covered the period 1896-1913.

Immediately after resigning his executive position at the hospital in 1893 Doctor Arnold entered practice to which he chiefly devoted himself for the remainder of his life with the exception of the years 1917 and 1918 when he was in military service. The high esteem in which he was held as a teacher and diagnostician naturally brought him a large consulting practice.

Early in his career Doctor Arnold became identified with medical education and in 1900 joined the

faculty of medicine at the Tufts College Medical School as Professor of Clinical Medicine. After twelve years of successful teaching in this institution he resigned to become dean of the newly established Harvard Graduate School of Medicine (1912) which position he filled with distinction for the next seven years.

When in 1921 the National Board of Medical Examiners decided to establish a subsidiary board in Boston Doctor Arnold was made its Chief Associate Examiner. He organized the Boston Board and continued as its head until 1928. From 1927 to 1928 he was a member of the Massachusetts Board of Registration in Medicine. In 1914 he delivered the oration at the annual meeting of the Massachusetts Medical Society.

During the early part of the World War and while dean of the Harvard Graduate School of Medicine he organized the course in military medicine. Some time previous to the entrance of the United States into the war he entered the Medical Officers Reserve Corps later namely April 11 1917 he was commissioned Major Medical Reserve Corps United States Army. He served at the New England Department Headquarters in Boston as Assistant to the Department Surgeon until November 1917 when he was transferred to the Surgeon General's Office in Washington and placed in charge of the Section on Medical Education. He became Lieutenant Colonel May 23 1918. On March 15 1919 he was discharged from service and on June 3 1919 commissioned Colonel Medical Officers Reserve Corps.

Doctor Arnold was a man of recognized ability as a clinician but even better known as an organizer and administrator. Under all circumstances his forceful personality made him a leader and early in his medical career he became conspicuous as one of the outstanding members of his profession. Few graduates of the hospital have been more widely known.

P. F. BUTLER, M.D., Secretary
Senior Staff

March 28 1935

NOTICES

CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

At 3 30 P.M. on Thursday April 18 in the Amphitheatre of the Peter Bent Brigham Hospital, Dr. A. H. Gordon Professor of Medicine McGill University Visiting Physician Montreal General Hospital Physician-in-Chief pro tempore, Peter Bent Brigham Hospital will give a medical clinic. To it are cordially invited practitioners and medical students. These clinics will be repeated on Thursdays until May.

On Saturdays in the wards of the Peter Bent Brigham Hospital, from 10 to 12, staff rounds will be conducted by Dr. Christian. These are open to all physicians.

SWEDISH EXPERIENCES WITH APPENDICITIS

Gunnar Nystrom, Professor of Surgery, University of Upsala, Sweden, will discuss Swedish Experiences in Combating Appendicitis, under the auspices of Alpha Omega Alpha, Tuesday, April 23, at 5 P.M., Harvard Medical School, Building D Amphitheatre

Physicians and medical students are invited to attend

TUMOR CLINICS IN BOSTON AND BROOKLINE
GIVING SPECIAL GROUP DIAGNOSIS FOR
CANCER

Beth Israel Hospital, 330 Brookline Avenue

Tumor Clinic—Tuesday and Thursday, 9 00 A.M.
First Visit 75c, Subsequent Visits 50c

Boston Dispensary, 25 Bennet Street (State Aided)
Tumor Clinic, Diagnostic Service Free)

Tumor Clinic—Tuesday and Friday, 9 30 A.M.
First Visit 75c, Subsequent Visits 50c

Collis P Huntington Memorial Hospital, 695 Huntington Avenue

General Tumor Clinic — Tuesday and Friday,
3 00 P.M.

\$2 00 to \$5 00 for patients who can afford to pay

Free Hospital for Women, 80 Glen Road, Brookline
Tumor Clinic — Daily, 8 30 A.M. By appointment only

Massachusetts General Hospital, Fruit Street

Tumor Clinic—Daily, 9 00 A.M.
First Visit 75c, Subsequent Visits 50c

Palmer Memorial Hospital, 195 Pilgrim Road

General Diagnostic Tumor Clinic — Monday,
3 00 P.M.

Charge for Examination \$1 50 Free to those unable to pay

Peter Bent Brigham Hospital, 721 Huntington Avenue

Tumor Clinic—Thursday, 1 30 P.M.
First Visit 75c, Subsequent Visits 50c

REPORTS AND NOTICES
OF MEETINGS

FAULKNER HOSPITAL CLINICAL MEETING

The regular clinical meeting was held at the Faulkner Hospital on Thursday afternoon, March 7, at five o'clock.

One case was presented for discussion which came to autopsy. It was a case of an acute infection in which the patient had been febrile for six weeks preceding death, although toward the latter part of the illness the temperature was only slightly elevated. At the start typhoid fever was suspected but was ruled out because there were no rose spots, the blood culture was negative, the Widal reaction was negative and there was a moderate leukocytosis. An x-ray picture of the chest at this time suggested the possibility of an early miliary tuberculosis and the patient was also troubled with severe headache.

This headache may have been accentuated by a diagnostic lumbar puncture which was done. Consultants at that time considered that miliary tuberculosis with probably a tubercular meningitis was the correct diagnosis. Shortly afterwards a small pleural effusion developed which was found on tapping to be a straw colored fluid without pus. Gradually the headache disappeared, the temperature tended to become lower and it seemed as though the patient was recovering when the physical signs of a bronchopneumonia developed and the fever became more elevated. Following this the fever gradually subsided and the signs in the chest cleared up. It was thought the patient would probably recover when it was noticed that the right thigh was larger than the left, but there was no edema. There was pain in the right thigh off and on and it was felt that there was a deep phlebitis. No evidence of a superficial phlebitis was found. About thirty-six hours before death the patient suddenly became somewhat cyanotic and the pulse became accelerated. Finally the patient died suddenly. At autopsy it was obvious that an embolus had finally become lodged in the branches of the pulmonary artery and caused death. It is felt that this embolus was present at the bifurcation of the pulmonary artery without actually causing obstruction from the time the pulse became accelerated and cyanosis developed. At autopsy there were signs in the various organs showing that there had been some infectious process going on for some weeks. Unfortunately due to the fact that the regular pathologist was ill the veins of the right thigh were not completely dissected and only a small portion of a thrombosed vein kept for histologic study. This showed a thrombus of probably a week's duration but no involvement of the wall of the vein. It is conceivable, however, and likely that the vein elsewhere in the leg may have shown a process in the wall and that the part of the vein which was studied contained a thrombus which had extended in the vessel from an area where the wall of the vein itself was involved. The lungs showed old infarctions.

In summarizing the situation it seemed likely that infection of unknown etiology occurred which probably localized in the veins of the right thigh fairly early in the course of the disease and that the pulmonary effusion and bronchopneumonia were due to emboli. The intense headache and symptoms pointing toward a tubercular meningitis may have been the result of two diagnostic lumbar punctures as the brain seemed to be essentially negative at autopsy. Just what the type of infection was could not be demonstrated and why it localized in the veins of the right thigh was not made clear. The interesting point is the amount of phlebitis which can be present in a limb with only very little in the way of symptoms and signs. This point has been emphasized by Dr. John Homans in an article which appeared in the November 29, 1934 number of *The New England Journal of Medicine*. The other practical point in this case is the question that if the diag-

sis had been made whether it would have been feasible to ligate the femoral vein

he other case presented was one in which recovery had taken place and the presentation was because of the extraordinary sequence of events in the case and the encouragement it gives never to predict a fatal termination in an acute case

The patient was a boy sixteen years of age and had an acute infection with localization in the arytenoid and with inflamed ears which did not require to be opened and with acute inflammation at different stages of the infection over a period of several weeks. At times there was a systolic murmur at other times no murmurs were heard. At times the boy was afebrile at other times there were definite chills. After about two months of this program the boy developed a right sided facial paralysis followed by a right sided hemiplegia. He then proceeded to have a series of convulsions and it was felt that there was some involvement of the brain either an abscess associated with the mild middle ear infections or an embolus from an endocarditis. Blood cultures were negative. Gradually the boy recovered and is now practically well except for a very slight residual of the hemiplegia.

It is interesting to speculate on what happened if the infection had been a streptococcus viridans endocarditis, his recovery would not be expected. If there had been an abscess of the brain such a favorable result would also not have been expected. If he had had a prolonged rheumatic fever infection one would not expect emboli to break off from the endocarditis. If he had a streptococcus hemolyticus infection one would have expected to find a positive blood culture or more definite injury to the valves of the heart. At the present time the heart is normal in size and there is no evidence of valvular defect.

Following the discussion of these two cases Dr Sidney C Wiggin presented a survey of the surgical operations which had been done at the Faulkner Hospital over a two-year period from the point of view of the relation of the anesthesia or surgical operation to complications. He presented some very complete charts which brought out the various problems that had arisen in detail. The report covered 2236 cases, and in this group only .15 per cent of fatalities occurred which could be attributed to the anesthetic. The anesthesia in these cases had been given by physicians all of whom had had some experience in anesthesia and Dr Wiggin emphasized the importance of training physicians during their hospital internships in the giving of anesthesia. The tendency for hospitals to use trained nurses as anesthetists tends to interfere with this training of house officers in anesthesia. Dr Wiggin feels that physicians moderately trained in anesthesia will have better results in this field than the nurse anesthetist, and these figures at the Faulkner Hospital seem to substantiate this claim. He emphasized the importance of hospitalization of the patient for two nights preceding operation in other than acute

emergencies. The preoperative study of the patient by the anesthetist together with the opportunity to give preliminary medication and supply the patient with plenty of fluids and carbohydrates seem well worth while. He called attention to the value of starting complete oxygenation of the patient in case of inhalation anesthesia while the operation is being completed. He advocates the use of atropine and scopolamine in cases in which either is to be used in order to prevent the development of excessive secretion in the respiratory tract. No break fast is allowed preceding operation and if the patient has had food before an emergency operation, the stomach should be washed out. In cases of intestinal obstruction and operations on the upper abdomen the Levine tube is used if vomiting begins. It is important not to put on dressings so tight that the diaphragm is splinted.

Dr Wiggin called attention to a variety of other details which have been instituted in cooperation between the Staff and the Anesthesia Service to minimize the discomforts and the risks of anesthesia. He emphasized the importance of having an anesthesia service in all hospitals so that the anesthesia would only be given by trained physicians and he pointed out that the physician trained in anesthesia with his medical knowledge would in the long run be a more desirable anesthetist than the nurse trained to do this.

MEDICAL CLINIC

Dr E. S. Emery Jr., conducted the regular Thursday afternoon clinic at the Peter Bent Brigham Hospital on the twenty-eighth of February. A series of five cases with peptic ulcer were presented. The first of these had a typical history of ulcer for the past twenty years with two negative x-ray examinations. The correct diagnosis was made only when the ulcer perforated recently. The second patient was a fifty three year old painter who entered with a bleeding duodenal ulcer and without any history of ulcer symptoms previously. His gastric analysis was within normal limits. The third case was a thirty nine year old male with four years of typical ulcer symptoms who also entered because of a hemorrhage which followed losing his job. The fourth patient was a forty four year old male with ten years of ulcer symptoms and two hemorrhages, one recently which followed his getting a job. The last patient, a forty two year old carpenter entered with ten years history of peptic ulcer which perforated in 1926 at which time a gastroenterostomy was done. In 1929 he developed a severe diarrhea and it was discovered that he had a gastroduodenal fistula. The fistula was treated surgically in 1934 and the gastroenterostomy undone after which the symptoms returned. This patient has the flushed face and bright eyes commonly associated with a type of individual in whom it is very difficult to get good results from treatment, and who is likely to develop alkalosis on medical treatment. He has a free acid of ninety and has responded poorly

Peptic ulcer is a chronic disease with frequent remissions and exacerbations. With the disappearance of the symptoms the ulcer definitely heals, but is prone to break down later. For this reason the disease is thought to be constitutional, and the local immediate treatment is really less important than general therapy. In a series of cases fatigue was found to be the most important exciting factor, emotion second, and infection third, but it was pointed out that these three factors are important in any chronic disease. To date there is no adequate theory of etiology, although Mann and Williamson have been able to obtain duodenal lesions exactly similar to human ulcers by anastomosing the jejunum to the pylorus and disconnecting the duodenum from its normal attachment to the stomach, in order to prevent any regurgitation of its alkaline contents into the stomach. From these experimental lesions it has been assumed that ulcer is coincidental with the failure of regurgitation of duodenal conditions, although this has not been directly proved.

From the experience gained at the Peter Bent Brigham Hospital there appears to be very little difference in the long run between the surgical and medical treatment of this condition. Nineteen per cent got complete relief by surgery, thirteen per cent complete relief by medical treatment, and twenty-three per cent complete relief where nothing was done. It is important to fit the treatment to the patient. Dr. Emery reviewed the various surgical operations and said that pyloroplasty and gastroenterostomy gave the best results. By the usual medical treatment the local condition can be helped by decreasing the free acid of the stomach and by decreasing the irritation of food on the mucosa. The Sippy diet régime has no advantages unless an absolute neutrality of the gastric acidity is obtained. In consideration of the general treatment it is important to determine the cause of relapses. General hygiene is important. Focal infections should be cleared up, as they are detrimental to general health, emotional conditions should be overcome where possible. For the average case without hemorrhage, obstruction, or perforation, a carefully regulated régime and normal diet with the avoidance of irritating foods and condiments are sufficient to prevent the return of the ulcer.

In the treatment of bleeding ulcers medical treatment should be tried first, but if the patient continues to bleed repeatedly after careful medical supervision surgery should be resorted to. The therapeutic results are about the same in obstructing ulcers whether the treatment is medical or surgical when the obstruction does not lead to over thirty per cent retention.

In persistent cases which are uncontrolled by medical and simple surgical procedures a subtotal gastrectomy should be performed. This is a difficult operation with a definite operative mortality and a return of acid may be expected if any of the gastric mucosa is left. The end results of all types of treatment have shown very little, if any, relation to the degree of gastric acidity.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

The Annual Meeting of the Essex South District Medical Society will be held Wednesday, May 8 1935 at the Salem Country Club, Peabody.

Dinner at 7 P M

Speaker Dr L. Vernon Briggs, who will talk on "The Medico Legal Aspect of Some Interesting Cases"

RALPH E. STONE, M.D., *Secretary*

NEW ENGLAND PHYSICAL THERAPY SOCIETY

The regular meeting of the New England Physical Therapy Society will be held at the Evans Memorial Auditorium, 82 East Concord Street, Boston, at 8 P M, on Wednesday, April 17.

The program will be the fourth and last in a series of lectures on Medical Electricity given by Dr L. L. Campbell, Professor of Physics, Simmons College. The lecture will be the second on the subject of Light, Visible and Invisible, and will include the consideration of the several kinds of radiation found in the complete Electromagnetic Spectrum.

The following fundamental relation for all electromagnetic waves will be discussed: Velocity of light or electricity = Frequency by wavelength.

Electromagnetic radiation will be taken up under the following heads:

- 1 Electric waves, including those of radio frequency
 - 2 Infra red, or thermal waves Penetrability of
 - 3 Visible rays
 - 4 Ultra violet rays and vitamin D
 - 5 X rays and molecular structure
 - 6 Gamma rays Natural and artificial radioactivity
 - 7 Cosmic rays Nature and Physiological effects of.
- Some applications of the above radiations in Physical Therapy

Physicians and medical students are cordially invited to attend

ARTHUR H. RING, M.D., *Secretary*

Arlington

BOSTON CITY HOSPITAL

STAFF CLINICAL MEETING

Wednesday, April 17, 1935, at 8 15 P.M.
Cheever Amphitheatre

Newer Methods in Diagnosis and Treatment of Nervous Diseases

- 1 Treatment of Hydrocephalus by Endoscopic Coagulation of the Choroid Plexus Dr Tracy J Putnam.
- 2 Therapeutic Use of Lumbar Puncture Dr H Houston Merritt.
- 3 Simple Methods of Treatment of the Neuroses Dr Merrill Moore
- 4 The Results of Treatment of Combined System Disease Dr Philip Solomon and Dr Maurice Strauss
- 5 The Differential Diagnosis and Treatment of Headache Dr Theodore J C von Storch.

6 Treatment of Narcolepsy with a New Drug Dr
Myron Prinzel and Dr Wilfred Bloom
berg.

Doctors and medical students cordially invited
COMMITTED ON HOSPITAL CLINICS.

MASSACHUSETTS MEMORIAL HOSPITALS

There will be a meeting of the Surgical Section in
the Ladies Aid Room (former nurses dining room)
Talbot Memorial, 82 East Concord Street, on Friday
April 12 1935 at 12 noon.

Dr H M Pollock Superintendent of the Hospital
will talk on Surgery in its Relation to Hospital Ad-
ministration "

Milo C. GRIZZ Secretary

NEW ENGLAND OPHTHALMOLOGICAL SOCIETY

The next meeting of the New England Ophthalmol-
ogical Society will be held on Tuesday April 16
1935 at the Massachusetts Eye and Ear Infirmary
243 Charles Street Boston

PROGRAM

9 00 A M Clinic and operating room
11 30 A M Neuro-ophthalmological Conference

EVENING PROGRAM

7 30 P M

Demonstration of
Ophthalmoscope
Metronoscope

Cases
Stationary and Traumatic Cataract. Dr Ralph
Ruggles

Paper
Convalescent Blood for Herpes Zoster Dr Trygve
Gundersen.

Discussion
Dr E. Lawrence Oliver

BENJAMIN SACHS M.D., Secretary

BOSTON UNIVERSITY SCHOOL OF MEDICINE

SURGICAL CLINIC AT THE BOSTON CITY HOSPITAL

Friday April 12 121 Cheever Amphitheatre
Dr William R. Morrison, Associate Professor of
Surgery at Boston University School of Medicine
will present

1. Carcinoma of Stomach, Billroth II Operation
2. Finney Pyloroplasty for Duodenal Ulcer
- 3 Several acute cases

Physicians and medical students are invited.

BOSTON MEDICAL HISTORY CLUB

8 FEBRUARY BOSTON

MONDAY APRIL 15 1935 AT 8 15 P.M.,
ANNUAL MEETING

Outline of the Development of Knowledge about
Syphilis of the Nervous System." Merrill Moore
M.D., Harry C. Solomon, M.D.
Illustrated by stereopticon

JAMES F. BALLARD Secretary

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society
will be held in the Peter Bent Brigham Hospital
Amphitheatre (Shattuck Street Entrance) Tuesday
evening April 16 at 8 15 P.M.

PROGRAM

Presentation of Cases.

The Clinical Aspects of Migraine. By A. H. Gor-
don, M.D., Associate Professor of Medicine McGill
University

MARSHALL N. FULTON M.D., Secretary

SOCIETY MEETINGS CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY APRIL 15 1935

Monday April 15—

8 15 P.M. Boston Medical History Club Boston
Medical Library 8 Fenway

Tuesday April 16—

All day session New England Ophthalmological So-
ciety Massachusetts Eye and Ear Infirmary See
notice elsewhere on this page

1 M South End Medical Club Headquarters of the
Boston Tuberculosis Association 554 Columbus
Avenue Boston.

† 30 4 P.M. Ward Visit Massachusetts Eye and Ear
Infirmary

† 4 5 P.M. Seminar Pediatric Laboratory Massachu-
setts General Hospital

Wednesday April 17—

* 8 P.M. New England Physical Therapy Society
Evans Memorial Auditorium 8 East Concord
Street Boston

8 15 P.M. Harvard Medical Society Peter Bent
Brigham Hospital Amphitheatre (Shattuck Street
Entrance)

8 15 P.M. Boston City Hospital Staff Clinical Meet-
ing Cheever Amphitheatre

Thursday April 18—

1 M Clinico Pathological Conference Massachu-
setts General Hospital

† 1 M Clinico Pathological Conference Children's
Hospital

3 30 P.M. Medical Clinic. Dr A. H. Gordon Peter
Bent Brigham Hospital

† 4 30 P.M. Surgical Clinic. Peter Bent Brigham Hos-
pital.

Saturday April 13—

10 1 Medical Staff Rounds Dr Christian Peter
Bent Brigham Hospital.

Open to the medical profession.

† Open to Fellows of the Massachusetts Medical Society

April 12—Boston University School of Medicine Surgical
Clinic at the Boston City Hospital. See notice elsewhere
on this page

April 12—William Harvey Society will meet in the Audi-
torium of the Beth Israel Hospital Boston at 8 P.M.

April 12—Massachusetts Memorial Hospitals. See notice
elsewhere on this page

April 15—Boston Medical History Club See notice else-
where on this page.

April 16—Harvard Medical Society See notice above.

April 18—South End Medical Club will meet at the
headquarters of the Boston Tuberculosis Association 554
Columbus Avenue Boston at 1 noon.

April 18—New England Ophthalmological Society See
page 63

April 17—Boston City Hospital Staff Clinical Meeting
See page 702.

April 17—New England Physical Therapy Society See
page 64

April 18—Clinic at the Peter Bent Brigham Hospital. See page 699

April 23—Swedish Experiences with Appendicitis See page 700

April 23—The Massachusetts Society for Social Hygiene will meet at the University Club, Boston. For information address Dr E Granville Crabtree, 99 Commonwealth Avenue, Boston.

April 25, 26, and 27—The American Association on Mental Deficiency will meet at the Palmer House, Chicago. For information address the Secretary, Dr Groves B Smith, Godfrey, Illinois

April 29 May 3, 1935—The American College of Physicians will meet at Philadelphia. For information address Mr E R Loveland, Executive Secretary, 133-135 South 36th Street Philadelphia, Pa

June, 1935—Medical Library Association will meet in Rochester N Y. For details address the Secretary Miss Frances N A Whitman, Librarian, Harvard University Schools of Medicine and Public Health, Boston, Mass

June 11—American Heart Association. The Eleventh Scientific Session will be held from 9 30 A.M. to 5 30 P.M., at the Hotel Claridge Atlantic City N J. The program will be devoted to various subjects on cardiovascular disease. Gertrude P Wood, Office Secretary, 50 West 60th Street, New York, N Y

June 12 and 13—Academy of Physical Medicine Annual Meeting will be held at the Claridge Hotel Atlantic City N J. For further details address Arthur H Ring, M D, Secretary-Treasurer, Arlington, Mass

June 17 to 21—Convention of the Catholic Hospital Association will be held at Creighton University, Omaha Nebraska. For information address the Most Reverend Joseph Francis Rummel, D D, Bishop of Omaha.

June 27-29 Inc—British National Association for the Prevention of Tuberculosis will be held at Southport England. Persons desiring further information should write to Miss F Stickland, Secretary of the Association at Tavistock House North, Tavistock Square, London, W C 1, England

July 1 23—University of Freiburg 1 Br will hold a vacation course of the medical faculty. For information address Akademische Auslandsstelle der Universität Freiburg 1 Br, Schwimmbadstrasse 8, Germany

July 22 27—Seventh International Congress on Industrial Accidents and Diseases Brussels, Belgium. The American Committee of the Congress is under the chairmanship of Dr Fred H Albee New York, for the Section on Accidents, and that of Dr Emery R Hayhurst, Columbus Ohio for Industrial Diseases. The American delegation to the Congress will sail from New York on July 8 and visit London, Amsterdam, The Hague and Paris, and, optionally, Budapest. Physicians interested in the Congress or in the medical tour in conjunction with it may address the Secretary, Dr Richard Kovacs, 1100 Park Avenue, New York City

October 7-10—American Public Health Association will meet in Milwaukee Wisconsin. For information address the American Public Health Association, 50 West 50th Street, New York City

DISTRICT MEDICAL SOCIETIES

ESSEX NORTH DISTRICT MEDICAL SOCIETY

The Annual Meeting will be held in May. Time, place and subject to be announced

E S BAGNALL, M.D., Secretary

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

May 8—See page 702

FRANKLIN DISTRICT MEDICAL SOCIETY

Meeting will be held on the second Tuesday of May at the Weldon Hotel Greenfield, Mass

CHARLES MOLINE, M D Secretary
Sunderland

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

May 8—Winchester

K L MACLACHLAN, M D Secretary
1 Bellevue Street, Melrose

NORFOLK DISTRICT MEDICAL SOCIETY

May—Annual Meeting. Date, time and place to be announced

PLYMOUTH DISTRICT MEDICAL SOCIETY

April 18—Meeting will be held at the Lakeville State Sanatorium at 11 A M

SUFFOLK DISTRICT MEDICAL SOCIETY

April 24—Clinical Meeting at the Children's Hospital. The medical profession is cordially invited to attend this meeting

ROBERT L DeNORMANDIE M D, President.
GEORGE P REYNOLDS, M D, Secretary

WORCESTER DISTRICT MEDICAL SOCIETY

May 2—Censors Meeting will be held in the Arts Room of the Worcester Public Library, Elm Street, at 4 30 P.M.

May 8—Wednesday afternoon and evening Annual Meeting of the Worcester District Medical Society. The time and place of this meeting will be announced later

ERWIN C MILLER, M D, Secretary

27 Elm Street, Worcester

WORCESTER NORTH DISTRICT MEDICAL SOCIETY

April 24—Meeting to be held at the Burbank Hospital, Fitchburg

BOOKS RECEIVED FOR REVIEW

Dietetics for the Clinician Milton A. Bridges Second Edition 970 pp Philadelphia Lea & Febiger \$10 00

The Medical Clinics of North America Volume 18 Number 3 November, 1934 301 pp Philadelphia and London W B Saunders Company Paper, \$12 00, Cloth, \$16 00 net

Practical Neurological Diagnosis With special reference to the problems of neurosurgery R. Glen Spurling 233 pp Springfield and Baltimore Charles C Thomas \$4 00

A Record Book for Tuberculosis Patients Lawrason Brown New York City Journal of the Outdoor Life In lots of 100 or more 8c each, in lots of 10 to 99, 10c each (plus transportation postpaid), in lots of 1 to 10, 15c each

The Patient and the Weather William F Petersen and Margaret E Milliken Volume II. Autonomic Dysintegration 530 pp Michigan Edwards Brothers, Inc \$6 50

The Herrmannsdorfer-Sauerbruch Diet. Robert Wollheim and Walter H Schauinsland 64 pp New York Professional Scientific Service

Mouth Infection Clinical histories Oliver T Osborne 119 pp New Haven The Printing Office of the Yale University Press \$2 00

Diseases of the Mouth and Their Treatment. A text book for practitioners and students of medicine and dentistry Hermann Prinz and Sigmund S Greenbaum 602 pp Philadelphia Lea & Febiger \$9 00

Elementary Human Anatomy Based on laboratory studies Katharine Sibley 360 pp New York A S Barnes and Company \$4 50

Surgical Diseases of the Chest. Evarts A. Graham, Jacob J Singer, and Harry C Ballou 1070 pp Philadelphia Lea & Febiger \$15 00

Alcohol and Anaesthesia W Burridge 65 pp London Williams & Norgate, Ltd 2/6

The Care of the Aged, the Dying and the Dead Alfred Worcester 77 pp Springfield and Baltimore Charles C Thomas \$1 00

The New England Journal of Medicine

VOLUME 212

APRIL 18 1985

NUMBER 16

NON CALCULUS OBSTRUCTIONS AT THE URETEROPELVIC JUNCTURE*

BY CHARLES Y BIDGOOD, M.D.† AND DOUGLAS J ROBERTS, M.D.†

CURRENT opinion is about equally divided regarding the rôle played by abnormal renal motility, aberrant vessels, and stricture, as the primary cause of non-calculus hydronephrosis. Dr Marion reporting cases from Professor Papin's clinic, believes that hypermotility is the most important factor, and that nephropexy is all that is necessary, except in the event of marked pelvis dilatation.

Drs Geraghty and Frantz were of the opinion that intramural fibrosis is almost always the original cause. This opinion was based on the finding of this condition in tissue removed from the ureteropelvic juncture, at operation in ten cases. In support of this they point to the frequency of renal hypermotility and aberrant vessels without evidence of obstruction. This speculation is of academic interest, because usually by the time the condition has advanced to the point of surgical interference, all three of these findings are present, and the most important thing is to be sure that all obstructing lesions have been relieved.

Clinically, three problems present themselves for decision, in order named. First the indication of preservative measures, contra nephrectomy. Secondly, at operation, the determination of all obstructing elements and thirdly whether all obstructions have been removed.

Conservative procedures are obviously appropriate in solitary hydronephrotic kidneys, and in bilateral obstructive hydronephrosis. In unilateral hydronephrosis the arguments supporting plastic procedures and nephrectomy are often so nearly equal as to constitute a real dilemma. The advisability of removing such kidneys is enhanced somewhat by Dr Human's researches on renal competition and counterbalance. In these, it is demonstrated that an obstructed kidney will not regain its function after a certain period of time, even if the obstruction is removed, because the opposite kidney, having undergone anatomical hypertrophy, will not release this function, and the previously obstructed kidney will

progress to complete atrophy. Therefore, in the absence of a test to determine renal reserve in an affected kidney, and the amount of anatomical hypertrophy of its mate, nephrectomy is often decided upon because the final status of the renal counterbalance cannot be accurately prophesied.

However, the successful results obtained by reparative surgery of the renal pelvis by Drs. Quimby, Young, Papin, Walters, and others, have given encouragement to the endeavor to save many kidneys whose pelves show considerable hydronephrosis.

There is no method for testing renal reserve, and the conclusions regarding it must be based upon available renal function tests, notably the phenolsulphonphthalein secretion. It must be remembered, however that this is a test of renal activity over a limited period of time and it gives only presumptive evidence concerning renal capacity and reserve. Clinical experience has shown that an obstructed kidney which will secrete a very moderate amount of dye over a short test period may be presumed to have sufficient recuperative ability to eventually recapture a worth while fraction of its normal function. As a matter of fact, a kidney which has been sufficiently damaged by back pressure so that it will not secrete any phenolsulphonphthalein during the period of time which is practical to keep the ureter catheter in place will sometimes regain its function completely. Therefore, the comparative urine urea determination has been done in several of the cases reported here, and we believe that this test is of value under these circumstances.

The total amount of urea secreted at any time by both kidneys varies tremendously, due to many extrarenal influences. Therefore, as a test of total renal function it is of little clinical value. However the percentage of urea secreted by a damaged kidney as compared with that secreted by its opposite normal fellow is often a valuable test of its activity, and an indication of its ability to regain its function. By this test, functional activity can be recognized in the presence of a negative phenolsulphonphthalein test and by this some patients may be spared their kidneys.

*Read at the combined meeting of the New York, Philadelphia and New England Branches of the American Urological Association at New Haven, Connecticut, April 21, 1984.
†Bidgood, Charles Y—Assistant in Clinical Urology Yale University School of Medicine. Robert Douglas J—Staff Urologist, Hartford Municipal Torrington Manchester and Winsted Hospitals. For records and addresses of authors see "This Week's" p. 98 142.

and the scope of preservative surgery can be correspondingly enlarged

The following abstract is a case in point.

J S (M H. No 31414) aged thirty nine, was admitted August 23, 1931 Urological examination revealed a stone impacted at the ureteropelvic juncture on the left side Function tests before and after removal of the stone were as follows

	Right Kidney		Left Kidney	
	Pre-operative	Post-operative	Pre-operative	Post-operative
App Time	4 min		0 in 30 min	6 min-utes
Secretion 15 Min	15 per cent			12 per cent
Divided Urine Urea	63 Grams per cent		42 Grams per cent	

One must therefore be very careful before deciding that a kidney is irreparably damaged, and it is interesting to note the case reported by Dr Young in which the secretion of phenol-sulphonphthalein increased from a trace in two hours to 48 per cent by virtue of one month's continuous drainage with a ureter catheter This procedure is of unquestionable value whenever it is possible to insert the catheter past the obstruction

The second problem, that of determining all obstructing factors present in the individual case cannot be solved until the ureteropelvic juncture is exposed surgically The following procedure has been found to be of considerable assistance in this

After the ureteropelvic juncture has been freely mobilized, a small needle attached to a 20 cc syringe was passed obliquely through the wall of the kidney pelvis which was then distended with sterile saline The pelvis and ureter are dropped into the wound in their normal position, and observed as the pelvis attempts to empty It will be noted that the obstructions, due to vessels and bands of scar tissue, are sometimes much more evident with the pelvis distended then when it is collapsed

When all visible obstruction has been satisfactorily demonstrated and corrected it must be borne in mind that a ureteral kink, a vessel, or a band of fibrous tissue tangent to the ureter often produces intramural fibrosis of a varying degree, not discernible by sight or touch Regarding this Drs Geraghty and Frantz say "The true nature of the obstruction is only revealed, however, by careful microscopic study of the region, which brings out the fact that many of the obstructions are very slight, narrowing simply being present" Therefore, at this point in the operation it is distinctly advantageous to repeat the pelvic injection If all obstructions have been removed it will be seen to drain easily and rapidly, but if narrowing of the lu-

men persists, distention above it is quickly noted, and it can be easily seen that the pelvis is having difficulty emptying itself It is probable that some of the failures which have occurred may have been caused by the fact that some slight obstruction, such as the above, had been allowed to remain. We believe that the value of pelvic distention lies in the surgeon's ability to demonstrate, immediately after his corrective operation, that all obstructions have been removed The following cases are illustrative

CASE 1, Mrs A. W (C H H No 19048) The patient was a woman, aged forty-three, admitted to



CASE 1 PLATE 1 Filling defect at ureteral pelvic juncture. Moderate hydronephrosis right side



CASE 1 PLATE 2 Shows filling defect to be constant, ruling out possibility of peristalsis.

the hospital complaining of intermittent attacks of abdominal pains over a period of ten years These

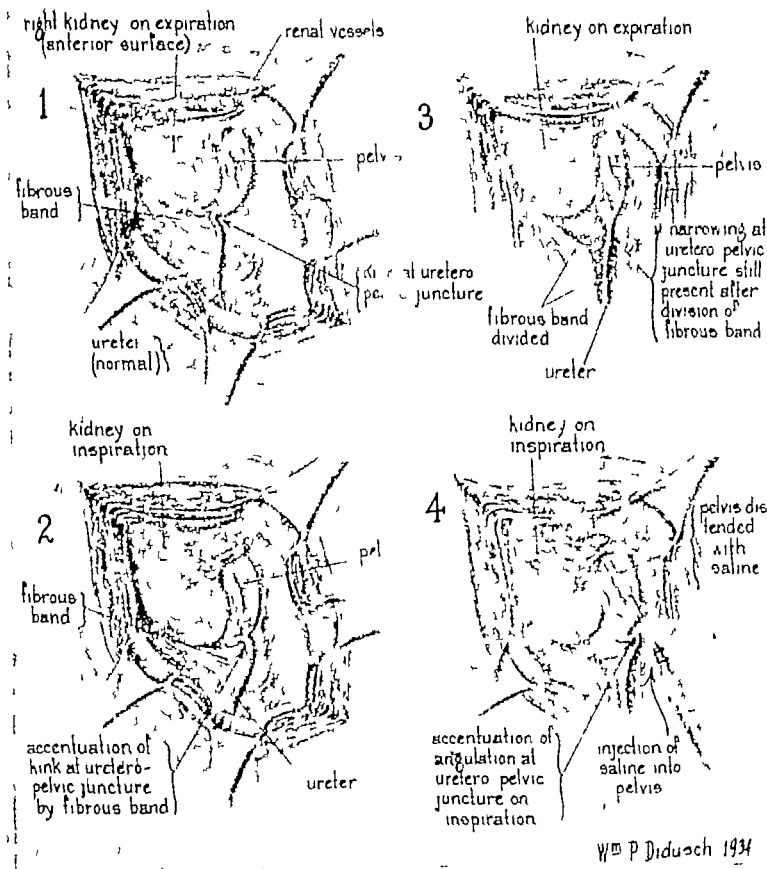
had been situated on the right side and had become more frequent in the past few years

Past History Unimportant

Physical Examination Essentially negative except for a slight tenderness over the right kidney region and in the right costovertebral angle

is a distinct narrowing of the lumen with a filling defect at the right ureteropelvic junction. There is no evidence of a calculus.

Conclusions Right-sided hydronephrotic changes, with apparent stricture or marked localized spastic changes at the ureteropelvic junction



W. P. Bidgood 1934

CASE 1 PLATE 1.

Cystoscopic Examination Bladder normal. Normal urine obtained. Ureter catheterization revealed sterile urine from both kidneys.

Intravenous phthalein appearance time five minutes from each side.

Secretion, left side twelve and a half per cent, right side seven and a half per cent in fifteen minutes.

Röntgenological Examination Dr D J Roberts (X Ray Plate 1, Case 1) Left pyelogram shows the pelvis calices and ureters to be normal in size position and contour. The right pelvis, and to a lesser extent the calices are somewhat enlarged. There

is no evidence of a calculus. In order to be sure that this pathological condition was constant, a second pyelogram on the right side was done one week later.

Röntgenological Examination Dr D J Roberts (X Ray Plate 2, Case 1)

Re-examination of the right side of the upper urinary tract confirms the previous findings. The area of constriction at the ureteropelvic junction remains constantly present, indistinguishable between a deformity from an aberrant vessel, and intrinsic inflammatory changes.

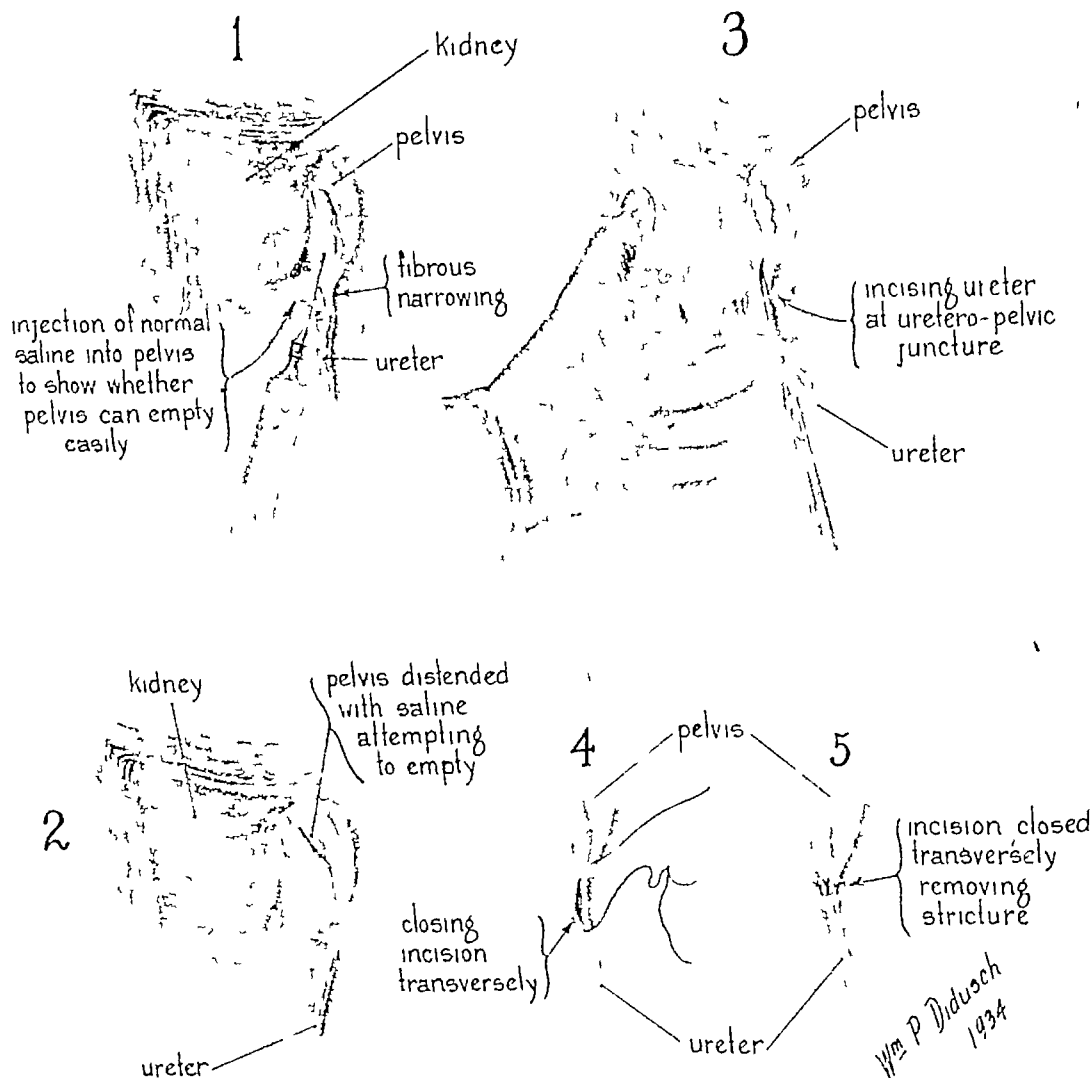
Final Diagnosis Obstruction at the ureteropelvic junction

Operation Division of fibrous band and Heineke-Mikulicz operation at the ureteropelvic junction

When the ureteropelvic junction was exposed there was seen passing behind it a band of fibrous tissue, over which the ureter was angulated. This angulation was accentuated on inspiration (Figures 1 and 2, Case 1, Plate 1). The pelvis slipping slightly be-

ureteropelvic junction still remained (Figures 1 and 2, Case 1, Plate 2). A Heineke-Mikulicz type of operation was done at the ureteropelvic junction. (Figures 3, 4 and 5, Case 1, Plate 2)

Postoperative Course Eight weeks after operation the right ureter was catheterized and intravenous phthalein showed the appearance time four minutes,



CASE 1 PLATE 2

hind this band, the ureter angulating upward and anteriorly to extend over it (Figure 2, Case 1, Plate 1). This band was divided and then on expiration the pelvis and ureter were without angulation. After pelvic injection and distention with sterile saline solution however, it was seen that on inspiration the ureter at the ureteropelvic junction became markedly angulated, and a narrowing was present at this point on both inspiration and expiration (Figure 4 Case 1, Plate 1). It was therefore evident that although the apparent primary cause of the obstruction the fibrous band had been removed a fibrous narrowing of the ureter at the

and the secretion twelve and a half per cent in fifteen minutes, which represents an increase of five per cent function in fifteen minutes.

Pyelographic Examination Dr R T Ogden (X Ray Plate 3, Case 1). Pyelographic examination of the right side shows an irregularity and narrowing of the upper ureter, particularly at the ureteropelvic junction. The degree of hydronephrosis is largely unchanged.

Examination Eighteen months following operation. The patient had had no further pain. The right ureter was catheterized and urine obtained, which was sterile to culture. Intravenous phthalein

showed the appearance time three minutes secretion twenty per cent in fifteen minutes. This represented thirteen and a half per cent increase in function in fifteen minutes from this kidney.



CARL 1 PLATE 3. Thirty-four days postoperative. Roentgenological result.

Pyelographic Examination. Dr R. T. Ogden (X Ray Plate 4 Case 1). The upper ureter is smooth in outline at this time and maintaining a good calibre. However at the ureteropelvic junction there is a localized degree of narrowing which is practically confined to the vertebral border of the ureter.



CARL 1 PLATE 4. Nineteen months postoperative. Roentgenological result.

Whether this is due to a spasm or a small adhesive band here is not well established. The lumen at this level however is well maintained. The same degree of enlargement of the pelvis and calices noted in the last examination is constant at this time.

Impression. Improved right-sided urinary tract findings.

Change in Function

	Right Kidney		Left Kidney	
	Pre-operative	Post-operative	Pre-operative	Post-operative
App. Time	5 min	3 min	5 min	5 min
Secretion	7½ per cent	20 per cent	12½ per cent	12½ per cent

Although the x ray examination left something to be desired the patient was free from symptoms, urine sterile and the phthalein secretion had increased from seven and a half per cent to twenty per cent in fifteen minutes. Therefore while the result was not perfect from a roentgenological standpoint, it was clinically satisfactory.

CASE 2 Mrs E C (M H No 34728) The patient was a woman twenty-seven years of age complaining of severe pain in the left side. The onset of her symptoms were two days before admission, since which time the patient had been in almost constant pain, with fever slight dysuria frequency and urgency. She passed no blood.



AND PLATE 1. Right hydronephrosis. Double angulation of ureter at and just below ureteropelvic junction.

Past History. Essentially negative.

Physical Examination. Temperature 105.6 pulse 140 respiration 20. Physical examination essentially negative with the exception of well-marked tenderness over the left kidney region and in the left costo-vertebral angle.

Four days after admission, under conservative treatment, the patient's temperature reached normal and eight days following admission she was cystoscoped.

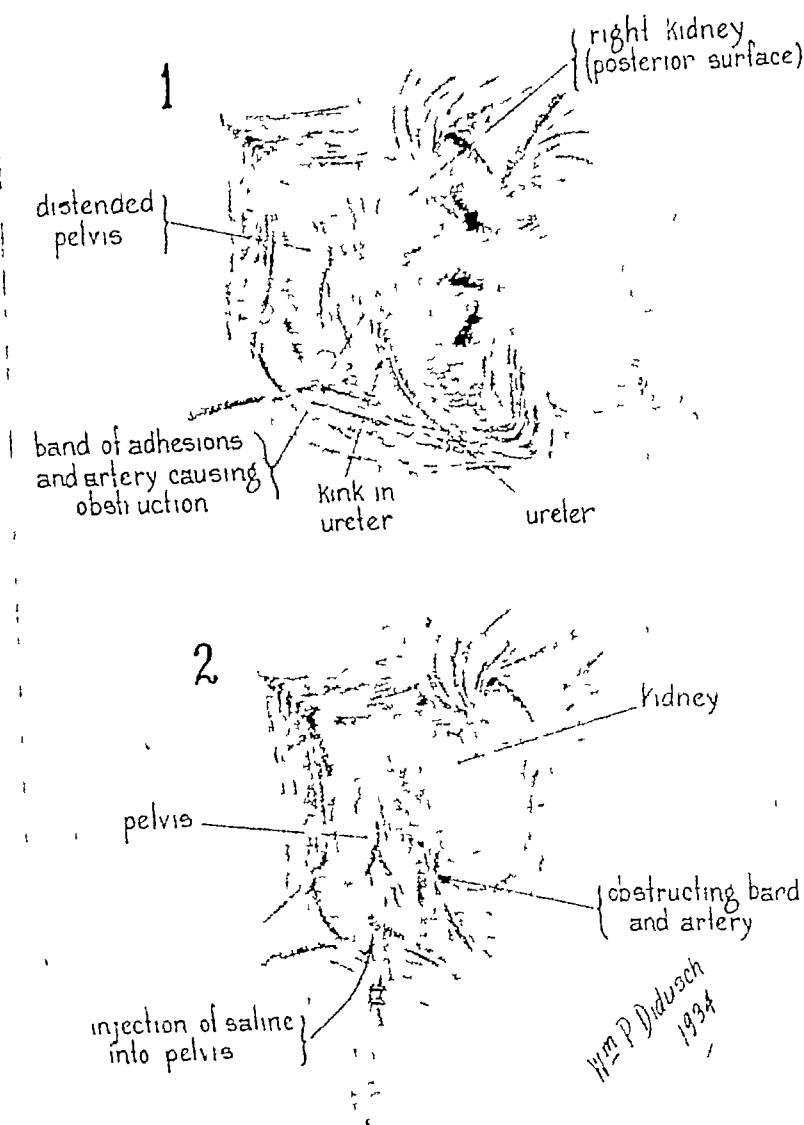
Cystoscopy. The bladder was essentially normal. Bladder urine microscopically showed no pus and a stained smear no bacteria. Both ureters were catheterized and urine collected from each side was sterile to culture.

Intravenous phthalein showed the appearance time right side five minutes left side four minutes secretion right side fifteen per cent left side fifteen per cent in fifteen minutes.

Roentgenological Examination. Bilateral pyelograms showed the pelvis to be normal in size position and contour (Plate 1 Case 2). On the right

side the kidney pelvis was definitely dilated. Just below the ureteropelvic juncture there was a filling defect, and below this a second filling defect, with angulation of the ureter at both points, apparently due to obliteration of the lumen of the ureter by pressure from the outside, or angulation at this point. Below this the ureter was normal. With the

This was caused by a band of connective tissue extending from the medial aspect of the lower pole of the kidney down to the ureter, and in the center of this there was seen a vessel which extended down the ureter (Figure 2, Case 2, Plate 1). When the kidney pelvis was distended with normal saline, this double angulation was markedly accentuated. The



CASE 2 PLATE 1

head of the patient elevated, the kidney was seen to drop abnormally. When this occurred, the angulations became very acute and quite sufficient to cause obstruction.

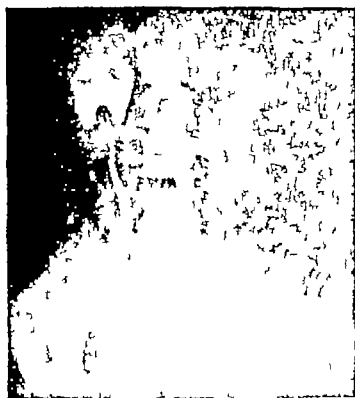
Diagnosis Right sided hydronephrosis, due to obstruction at the ureteropelvic juncture, probably caused either by an aberrant vessel or a band of fibrous tissue crossing the ureter at this point.

Operation Ramstedt operation for stricture of the ureter. Division of fibrous band. Straightening of angulation in the ureter.

When the kidney pelvis and ureter were exposed there was seen just below the ureteropelvic juncture, a marked "S" shaped angulation of the ureter

connective tissue and vessel were divided, and the ureter straightened. The pelvis was again distended with saline, and it was evident that although the kinks had been relieved, there still remained a localized area of narrowing in the ureter about 1 cm below the ureteropelvic juncture (Figure 1, Case 2, Plate 2).

A longitudinal incision about 1½ cm long was made through this narrowed area in the ureter. This incision extended through the muscular layers of the ureteral wall to the depth of the mucosa, but not through it. The mucosa was seen to bulge through the defect. (Figures 2, 3 and 4, Case 2, Plate 2). After this Ramstedt type of operation had



CASE 2, PLATE 2. Nineteen months postoperative. Angulations straightened. Normal ureteral lumen. Hydronephrosis slightly improved.

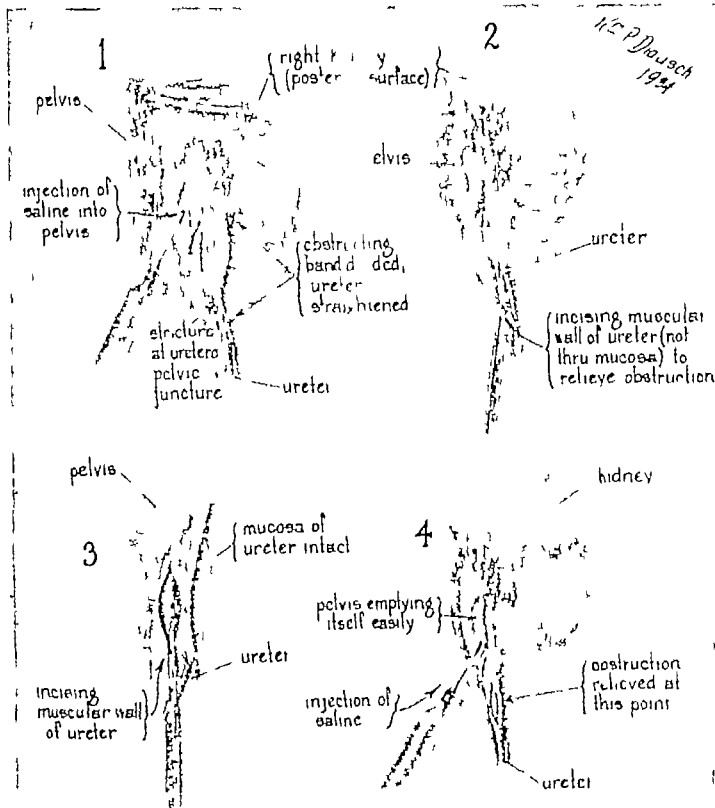
been completed the pelvis was again injected with normal saline and seen to empty easily. A nephroptery was done.

Postoperative Note Five months after operation the right ureter was catheterized and sterile urine obtained. Intravenous phthalein appearance time four minutes, secretion fifteen per cent in fifteen minutes (Pyelograms, Plate 2 Case 2). The kidney pelvis is still considerably larger than normal. The angulation and distortion of the ureter have been corrected and the ureter showed a normal calibre, with no evidence of constriction.

Change in Function

	Right Kidney		Left Kidney	
	Pre-operative	Post-operative	Pre-operative	Post-operative
App Time	5 min	4 min	4 min	4 min
	utes	utes	utes	utes
Secretion	15 per	15 per	15 per	15 per
15 min	cent	cent	cent	cent

CASE 3 A. C. (M. M. H. 16295) Complaint. Pain in the right back and right side of abdomen. General physical examination essentially negative.



Urological Examination Abdomen negative, no tenderness or masses over either kidney region or in either costovertebral angle Rectal examination showed the prostate and vesicles normal

Cystoscopy On inspection the bladder was normal Catheter ascended to both kidneys and sterile urine was obtained from each side Intravenous phthalein appearance time, left side, sixteen minutes, secretion less than one per cent in fifteen minutes On the right side no phthalein appeared in thirty minutes

Urine urea determination Right kidney 95 Grams per cent, left kidney 16 Grams per cent

X-ray Examination Dr D J Roberts (X ray Plate 1, Case 3) The left pelvis is moderately



CASE 3 PLATE 1 Bilateral ureteral angulation Most marked on right side

dilated and angulated forward The ureteropelvic juncture is looped posteriorly There is a double angulation of the ureter at this level Below this point the ureter is normal in appearance

The right kidney pelvis is greatly enlarged The same angulation is noted on the right side as on the left.

Röntgen Conclusions Extensive hydronephrotic changes in the right kidney pelvis and a similar process to a less marked degree on the left side Both apparently resulting from partial obstructive changes at the ureteropelvic juncture

First Operation Straightening of the kink in the left ureter

When the ureter and the ureteropelvic juncture were exposed, there was seen a band of connective tissue apparently running from the lower pole of the kidney downward and across the ureter In this band there was a fair sized vessel There was also a large vessel extending down the kidney pelvis to the ureter (Figure 1 Case 3, Plate 1) The band of connecting tissue and the vessel were divided (Figure 2 Case 3 Plate 1) When this was done the ureter was replaced in its normal position, and the pelvis distended with sterile saline It was then seen that when the pelvis contracted in its attempt to empty a marked kinking of the ureter occurred at a point at about where the connective tissue had crossed it (Figure 4 Case 3 Plate 1) The ureter was therefore placed in close proximity to the lumbar muscles and over it was sewed a pad of fat in order to diminish its motility and prevent kinking during systole (Figure 5 Case 3, Plate 1)

Postoperative Examination Ureter catheterization thirteen days after operation Sterile urine obtained from the left kidney Intravenous phthalein appearance time five minutes Secretion, five per cent in fifteen minutes Pyelography Dr D J Roberts (X-ray Plate 2, Case 3) The hydronephrosis is about the same size The upper three or four cm of the ureter is considerably narrowed The course of this portion of the ureter has been straightened and the ureter appears somewhat foreshortened since the previous series

Second Operation Two weeks after the first. Division of varicose vein at the ureteropelvic juncture Ramstedt operation at the ureteropelvic juncture Transverse pelvic resection

The kidney pelvis and ureter were exposed and the pelvis found to be very much dilated and redundant Extending up the ureter were some abnormally large and apparently varicose veins which divided at the ureteropelvic juncture One division extended upward over the pelvis and into the hilum of the kidney The second division hooked around underneath the ureter, and encircled it before entering the hilum (Figure 1, Case 3, Plate 2) These vessels were divided both above and below the ureteropelvic juncture (Figure 2, Case 3, Plate 2) The pelvis was then distended with normal saline, and it was evident that the kidney pelvis was unable to empty itself because of its redundancy (Figure 2, Case 3, Plate 2) This was caused by the fact that the ureter did not leave the pelvis at its most dependent point, and also because of demonstrable narrowing of the lumen at the ureteropelvic juncture An incision was then made through this strictured area to the depth of the mucosa but not through it according to the Ramstedt principle. (Figure 3, Case 3, Plate 2) A "V" shaped segment was then taken from the pelvis transversely (Figure 4, Case 3, Plate 2) and the pelvis closed with a continuous suture of No 1 plain catgut. The redundancy and stricture had then been corrected and when the pelvis was distended it emptied readily

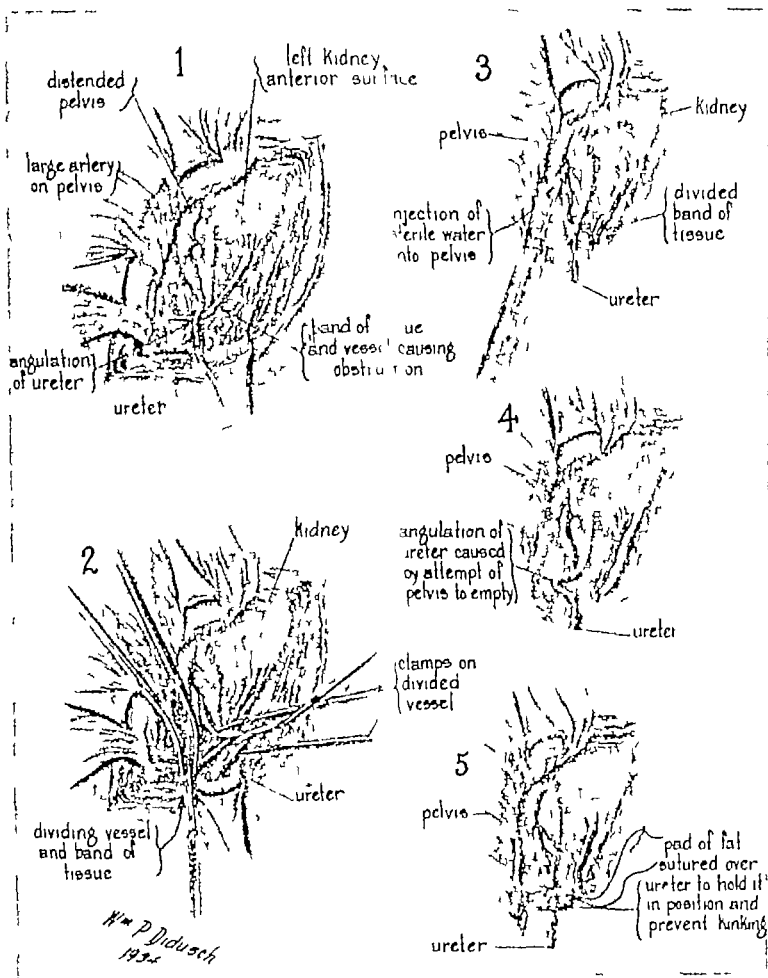
Postoperative Examination Thirteen days after the second operation Pyelography Dr R. T Ogden (X Ray Plate 3, Case 3) Bilateral pyelograms show the right renal pelvis to be distinctly smaller than in previous examination, particularly in its transverse width due to surgical intervention The ureter emerges from the most dependent point of the pelvis, with the angulation formerly noted having been corrected The minor calices are likewise smaller and more normal in appearance The pelvis and calices on the left side are but little changed so far as size is concerned The angulation noted in the upper end of the ureter has been corrected and the ureter is situated more laterally

Intravenous phthalein at the time of discharge Appearance time right side, five minutes, secretion twenty per cent in fifteen minutes Left side, appearance time, five minutes secretion fifteen per cent in fifteen minutes Both kidney urines sterile

Change in Function

	Right Kidney		Left Kidney	
	Pre-operative	Post-operative	Pre-operative	Post-operative
App Time	0	5 min	16 min	5 min
Secretion 15 min	0	20 per cent	Less than 1 per cent	15 per cent

CASE 4 Mrs M M (C H H 22337) A woman twenty nine years old, admitted to the hospital com



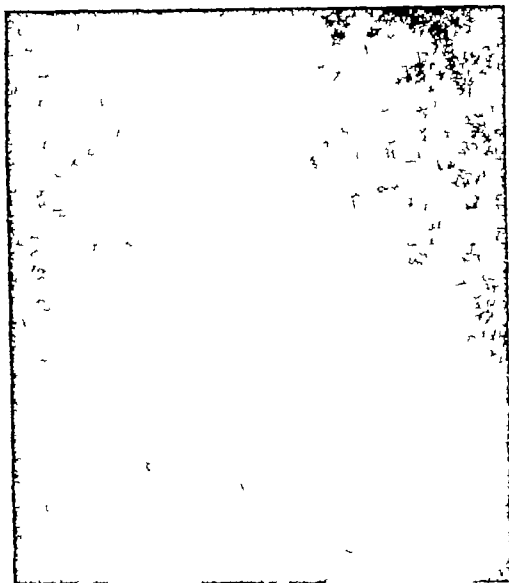
CASE 3 PLATE 1
(Left Side.)

F

plaining of intermittent attacks of pain in the right side over a period of fifteen years. These had never been severe until six weeks ago when she had a very severe attack, which recurred two weeks ago, and was accompanied by chills, fever, and frequency of urination and pyuria.

Past History Essentially negative

Physical Examination Temperature 101.8°. General physical examination essentially negative in so far as heart and lungs were concerned. There was moderate tenderness over the right kidney region,



CASE 3 PLATE 2 Thirteen days postoperative left side poor filling

but no masses were felt. No tenderness over the left kidney region. The urine contained pus, and a stained smear showed many colon bacilli.

Cystoscopy The bladder showed a diffuse catarrhal inflammatory reaction. Otherwise negative. Both ureters were catheterized, and culture of the urine from the right kidney showed colon bacilli. The left kidney urine was sterile. Intravenous phthalein appearance time, left side four minutes; secretion twenty per cent. Right side appearance time seven minutes; secretion fifteen per cent in fifteen minutes.

Röntgen Findings Dr D J Roberts (X ray Plate 1 Case 4) The left kidney pelvis is essentially normal. The right kidney pelvis is considerably enlarged. The calices showing moderate dilatation. The ureteropelvic junction is distorted and angulated upward.

Conclusions Distortion of the right ureter, particularly at the ureteropelvic junction where there are moderate obstructive changes causing a rather marked degree of hydronephrosis.

Operation When the ureteropelvic junction was exposed there were tremendous varices surrounding the ureter, and it was first thought that these might be the cause of the obstruction (Figure 1, Case 4). They were divided and the pelvis distended with normal saline. It was then seen that, on inspiration the ureter at the ureteropelvic junction angulated over a band of fibrous tissue as shown in figure 2 case 4. This was therefore divided (Figure 3 Case 4). When this was done there was considerable narrowing at the ureteropelvic junction so that when the pelvis was distended with normal saline it still did not empty. A longitudinal incision was made at the ureteropelvic junction according to the Ramstedt principle as shown in figure

3, case 2, plate 2. The pelvis still could not empty due to redundancy of its lateral aspect as shown in figure 4, case 4. Therefore a transverse "V" shaped segment was taken out of the pelvis, as shown in figure 5 case 4, and the defect closed by continuous suture of No 2 plain catgut. When this had been accomplished the angulation at the ureteropelvic junction was straightened so that the pelvis emptied freely. A small wound was made in the ureter just below the site of the Ramstedt operation, and a No 9 catheter passed up into the pelvis for drainage.

Examination One month after operation. Phenol sulphophthalein test. Appearance time, four minutes; secretion eleven and a half per cent in fifteen minutes. The kidney urine was sterile to culture.

Change in Function

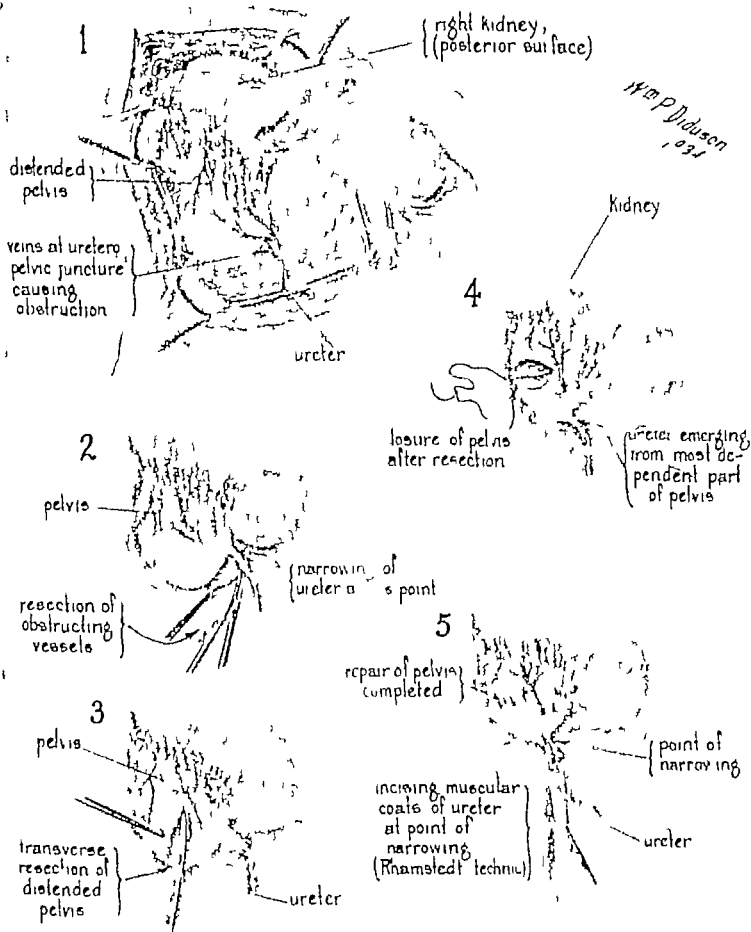
	Right Kidney		Left Kidney	
	Pre-operative	Post-operative	Pre-operative	Post-operative
App Time	4 min-utes	4 min-utes	4 min-utes	
Secretion	15 per cent	11½ per cent	20 per cent	

Röntgen Findings Dr R T Ogden (X ray Plate 2, Case 4) The kidney pelvis is distinctly smaller than on previous examination, and the calices likewise appear slightly less enlarged. There is a slight deformity of the pelvis at its junction with the ureter at the site of the surgical intervention, where the lumen appears slightly narrowed.

Röntgen Conclusions Improved right sided urinary tract findings.

This case was the second in which a longitudinal incision through the muscular coats of the ureter down to the mucosa had been made for a localized area of narrowing. This procedure similar to the Ramstedt operation for congenital pyloric stenosis, has given very satisfactory results in these cases. It possesses several advantages over the Heineke-Mikulicz type of operation in that there is no limit to the length that the incision can be made. Also, since the urinary tract is not opened, there is no danger of the introduction of infection into it.

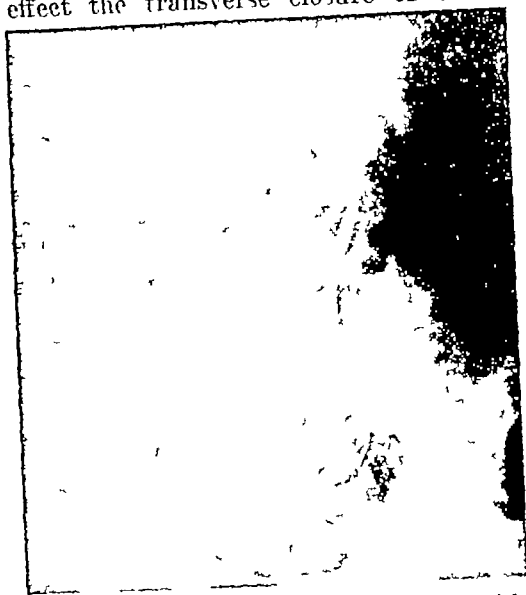
In the latter of the two cases it was necessary to open the pelvis in order to do the transverse resection. Therefore, a ureter catheter was inserted from below to the site of the Ramstedt into the pelvis. In the event that a resection is not necessary, this should not be done. Dr David M Davis has recently reported a similar procedure in which multiple incisions were made through the muscular coat of the ureter. It would seem that this is advisable if the pelvic injection shows that one incision has not sufficed. If however, the pelvis empties readily after one incision through the muscular coat, it would be wise to forego making further ones because there is danger of opening the mucosa. In a recent case in which this type of operation was attempted it failed because the mucosa was nicked. This accident will probably be unavoidable in some cases.



CASE 1 PLATE
(Right Side)

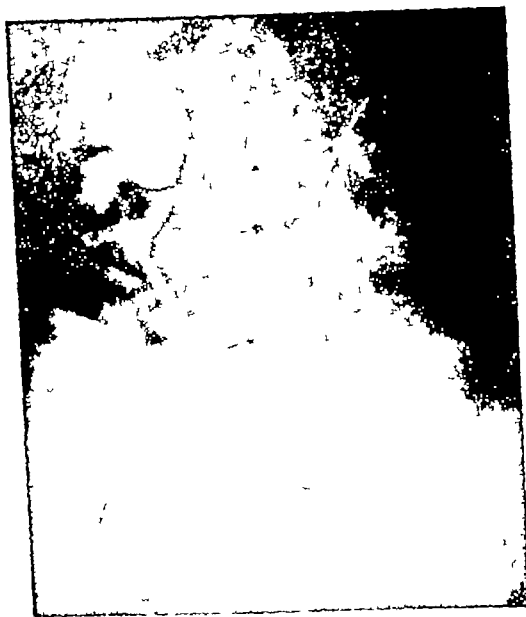
The name Rhamstedt is reproduced as it appeared on the original drawing.

It has been said that the Heineke-Mikulicz type of operation has several disadvantages. In the first place, it is likely that the stitches used to effect the transverse closure of the longi-



CASE 3 PLATE 3 Two weeks postoperative right side
Four weeks left side

tudinal wound will not hold for a long enough period of time actually to make the wound heal transversely. Secondly, when the transverse closure is made on one side of the ureter, a



CASE 4 PLATE 1 Right sided hydronephrosis with distortion of right ureter

pucker, or valve-like fold in the opposite wall may result, due to the small calibre of the tube. This irregularity may perpetuate the obstruction, or cause a urinary fistula to persist. We believe that the postoperative pyelograms in case 1 which shows the incision on the vertebral border of the ureter at the site of the operation,

may well be interpreted as demonstrating such a fold. In this particular case, however, it is apparently doing no damage because the lumen of the ureter is sufficiently wide to allow free drainage in spite of this. When, however, the longitudinal incision through the muscular coats of the ureter is such that the mucosa is allowed to bulge through the opening, as in the Ramstedt type of operation, the lumen is correspondingly widened, and the danger of introduction of infection is eliminated.

SUMMARY

Because a kidney shows no evidence of function, as tested by dye secretion, it cannot be said that it is irreparably damaged.

Simultaneous bilateral urine urea determinations are of use in doubtful cases.

An accurate test of kidney reserve as an index of its recuperative ability is desirable, but not available at present.

Pelvic injections at operation are of assistance in demonstrating whether or not all factors tending to obstruct have been removed, and, unless every such impediment is removed, failure will often occur.

The Ramstedt type of operation for fibrous narrowing of the ureteral lumen, presents several advantages over the Heineke-Mikulicz principle. First, it does not entail the opening of the urinary tract, and thereby diminishes the opportunity for infection to enter. Secondly, there is no limit to the length that incision may be made and thirdly, there is no danger of puckering the opposite wall of the ureter.

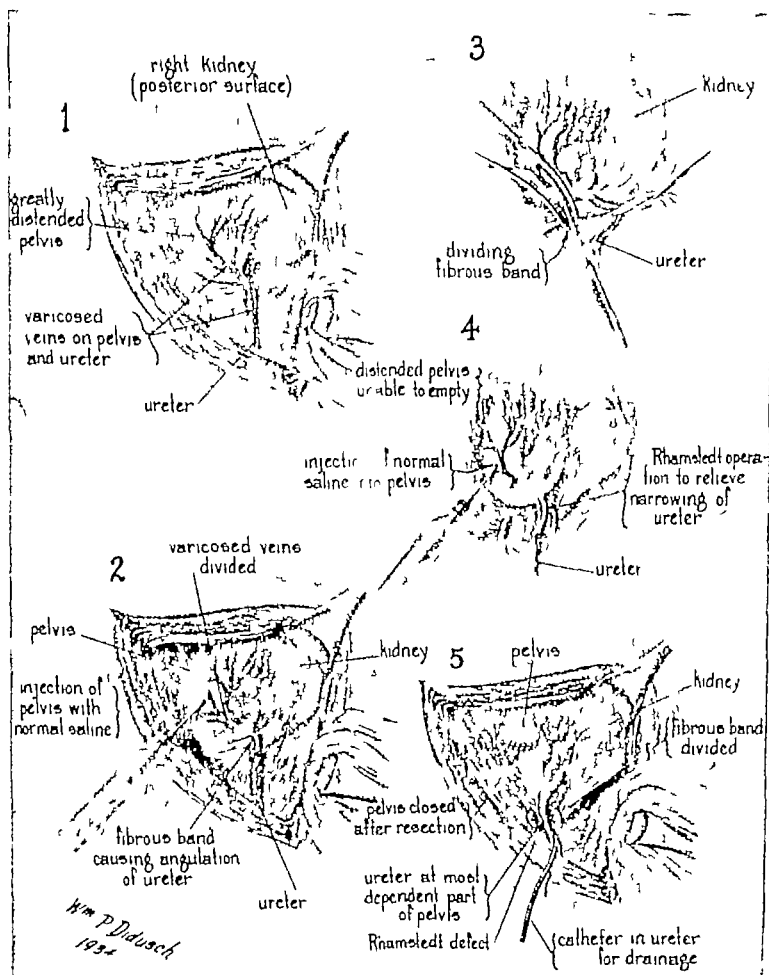
Pelvic infection will often subside spontaneously if free drainage is obtained (Cases 1 and 4).

Clinical and functional improvement is often more satisfactory than the roentgenological, in that the pelvis dilatation often persists. It is possible that if a pelvis is dilated sufficiently over a period of time, it loses its muscular tone, and will not contract to the usual normal size, even though it is draining well, and is dynamically satisfactory.

ROENTGENOLOGICAL SUMMARY

Before any operative procedure is attempted, coned down interval pyelographs of the ureteropelvic junction, to determine the emptying time of the pelvis, are of value, particularly when used in comparison with a similar study made after such a plastic or other operative procedure. This will show comparative results. Thus a restoration of function may be visualized, whereas anatomically as viewed on a single radiograph, the relief may not be apparent. This was not done in these cases, but we think that it should be.

Excretion urography may be an aid in deter-

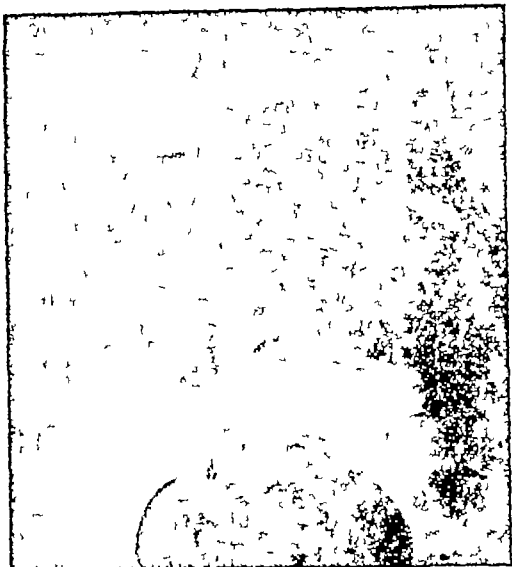


CASE 4 PLATE 1.

The name Rhamstedt is reproduced as it appeared on the original drawing.

mining the emptying ability of a pelvis, but only when a solitary kidney is present or one acting as such

The postoperative degree of dilatation of the



CASE 4 PLATE 2 Condition four weeks postoperative

kidney pelvis or calices as noted in a pyelogram is not an accurate criterion of the functioning capacity of the kidney

REFERENCES

1 Hluman F and Morison D M. Experimental hydronephrosis arterial changes in the progressive hydronephrosis of rabbits with complete ureteral obstruction Surg. Gynec. Obst. 42 209 1926
2 Hinman F and Kutzmann A A Congenital valvular obstruction of the posterior urethra. J Urol 14 71 1925
3 Hinman F Experimental hydronephrosis J A. M. A. 80 815 (Feb 3) 1923
4 Idem Experimental hydronephrosis—repair following uretero cystoneostomy in white rats with complete ureteral obstruction J Urol 3 147 1919
5 Idem Significance of renal counterbalance in surgical treatment of renal lesions J A. M. A. 94 1207 (April 19) 1930
6 von Lichtenberg A. Plastic surgery of the renal pelvis and ureter J A. M. A. 93 1706 (Nov 30) 1929
7 Idem Anastomosis between ureter and pelvis Ztschr f. urol Chir 6 284 1921 Abst. J A. M. A. 77 743 (Aug. 27) 1921
8 Papin E De quelques opérations conservatrices dans les hydronephroses Bull et mém. Soc. nat. de chir. 54 500 (April 7) 1928
9 Walters W Evaluation of results of conservative surgical treatment of hydronephrosis Proc. Staff Meetings Mayo Clin 6 712 (Dec 2) 1931
10 Idem Resection of the renal pelvis for hydronephrosis its complications and results Surg. Gynec. Obst. 51 711 1930
11 Idem Resections of the renal pelvis and other plastic operations for hydronephrosis Surg. Gynec. Obst. 55 508 1932
12 Quinby W C Plastic surgery of the renal pelvis J A. M. A. 89 541 (Sept 10) 1927
13 Idem Factors influencing the operative procedure in hydronephrosis J A. M. A. 93 1709 (Nov 30) 1929
14 Smith G G Plastic surgery of the kidney and ureter New Eng. J. Med. 204 297 (Feb 12) 1931
15 Marion, M Rapport (Papin E) De quelques opérations conservatrices dans les hydronephroses Bull et mém. Soc. nat. de chir. 54 500 [April 7] 1928
16 Geraghty J T and Frontz, W A A study of primary hydronephrosis J Urol 2 161 1918
17 Young, H. H. Obstructions to the ureter produced by aberrant blood vessels Surg. Gynec. Obst. 54 26 1931
18 Davis D M New methods for performing ligature of the vas deferens and for the relief of ureteral stricture. Tr. West Branch A. U. A. 2 15, 1933

BRAXTON HICKS VERSION*

BY FREDERICK C IRVING, M D †

IN 1860 J Braxton Hicks first described in the *Lancet*, the method of "combined internal and external version" which bears his name. Four years later¹ he published a monograph on the same subject illustrated by the clear and simple drawings which are reproduced in this article. Hicks was the first to substitute a breech for a vertex presentation by the use of both the external and internal hands, although a somewhat similar manoeuvre had been employed by Wiegand as early as 1807. Wiegand, however, had never in this way performed complete version but had confined his operations to transverse or oblique presentations. He used both hands externally to bring the nearest fetal pole, either the head or the breech, over the inlet and then by vaginal manipulation he drew it into the pelvis. He was followed in Germany by Mattei, Stoltz, Martin, Hohl, and Carl Esterle. To Hicks, therefore, belongs the credit for the combined or bipolar version as we know it to-day. Until his time women with placenta previa were treated by vaginal packs, the colpeurynter or cervical dilatation followed

by immediate internal podalic version and extraction, a method conducive to a very high mortality. His discovery that the cone-shaped half breech was the most effective tampon for the placental site, combined with his intelligence in recognizing that once the infant was turned, further dilatation of the cervix should be left to nature, has been the means of saving many lives.

TECHNIQUE

The method of performing combined version has changed in no important particular from the days of Braxton Hicks. The position of the fetus is first determined by abdominal palpation. With the patient under anesthesia the whole hand is passed into the vagina. If the position is left, the left hand is used, if right, the right hand is employed. Two fingers are introduced through the cervix. If there is a marginal or partial placenta previa the membranes are ruptured. Should the afterbirth entirely cover the os, it is perforated with a hysterectomy clamp in a space between cotyledons and two fingers are passed into the amniotic cavity. As much fluid as possible should be retained in the uterus to facilitate the manoeuvres which follow. The head is pushed upward and

*From the Department of Obstetrics, Harvard Medical School and the Boston Lying In Hospital.
†Irving, Frederick C.—William Lambert Richardson Professor of Obstetrics, Harvard University Medical School. For record and address of author see This Week's Issue, page 742.

to the side in the direction of the occiput while the other hand makes external downward pressure upon the breech in the other direction so that a transverse presentation is produced (Fig 1) When the head has been dislodged

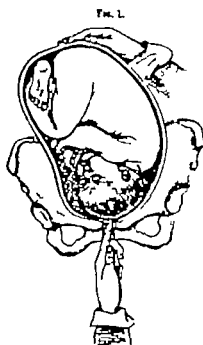


FIG 1. Dislodgment of the head. (Hicks)

above the brim of the pelvis, the outside hand is employed to lift it upward toward the fundus. The fingers in the uterus search for a foot (Fig 2) The fetal hands are first encountered

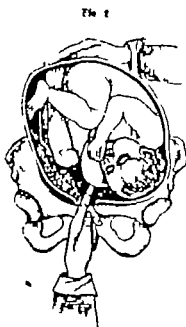


FIG 2. Vertex in process of conversion into transverse presentation. (Hicks.)

and are pushed onward in the direction of the head. After a foot is identified it is gently drawn through the cervix, the outer hand meanwhile leading the head farther up into the fundus and thus completing the version. (Fig 3)

With three or more fingers dilatation and with a clear idea of the position and of what the operator wishes to accomplish, the procedure presents no difficulty to the trained obstetrician. If, however, the os is only two fingers dilated he frequently finds that it is not sufficiently open to permit the passage at the same time of both the fingers and the fetal foot. Under such circumstances he may be tempted to stretch the cervix sufficiently to

achieve this end. Such a procedure cannot be condemned too strongly. It is almost certain to cause laceration which, although bad enough in any case, may in placenta previa become the first act of a tragedy. Jelliett² advises that in such cases the foot be led into the cervix and that the fingers be withdrawn into the vagina and be used to make counterpressure against the portio vaginalis while the outer hand, exerting

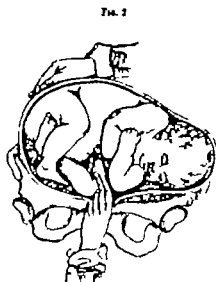


FIG 3. Bringing down a foot. (Hicks.)

pressure upon the breech, pushes the foot and leg through the os. While this procedure occasionally may be of value, in certain other instances it does not produce the desired result. A method used in our clinic for delivering the foot through the cervix has proved useful on

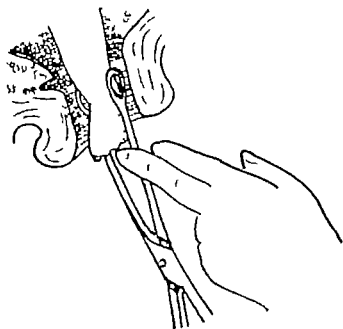


FIG 4. Bringing foot through cervix with sponge holding forceps.

numerous occasions. After the foot has been led into the cervical opening the fingers are withdrawn and it is gently grasped in sponge-holding forceps held in the outside hand and operating under the guidance of the vaginal fingers and is thus drawn through the os (Fig 4)

If the os is only one finger dilated no attempt should be made to stretch it instrumentally or digitally. In such a case a Voorhees bag should be employed introducing it into the ovum in

placenta previa as it thus more effectually checks bleeding, or in other cases outside the sac in order to preserve the liquor amni and so later facilitate version

After the foot and leg are delivered through the vulva, the half breech acts upon the cervix and the lower uterine segment as a conical tampon, so that in placenta previa the fetus sits upon the afterbirth and presses it firmly upon its site (Fig 5) All hemorrhage immediate-

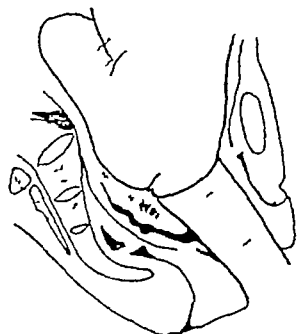


FIG 5 Hemorrhage arrested by the pressure of the half breech on the placenta. (Redrawn from Bumm.)

ly and invariably ceases. The accoucheur is now secure in the knowledge that until the infant is expelled the mother will bleed no more. Usually a fillet is applied to the ankle by a clove hitch and a one or two pound weight is attached by a cord passing over the foot of the bed. Only sufficient traction is maintained to check bleeding. The so-called slow manual extraction is not Braxton Hicks version but is *accouchement force* and in placenta previa is accompanied by the same high mortality. Hicks himself said, "and here again I wish to urge the importance of not delivering the child with rapidity after the accomplishment of version." Once the infant is turned, the foot brought outside and the bleeding has ceased the rest of the delivery is left to nature, manual intervention being employed only in some instances to free the shoulders or the aftercoming head and then only with the utmost gentleness.

Textbooks of obstetrics almost without exception advise Braxton Hicks version as the operation of choice in placenta previa for the general practitioner who is untrained in obstetrics. Such a statement is hard to understand in view of the technical difficulties that from time to time we have encountered in our clinic and inspires the thought that these authors could have had no great personal experience with the operation. Indeed, except for deliberate manual dilatation of the cervix, it is difficult to think of any vaginal manipulation which may if maladroitly performed be more difficult or productive of more harm. I shall show later by pointing out the obstacles encountered and the mistakes made in our hospital what these difficulties are.

INDICATIONS (Table 1)

Placenta Previa. Forty-five, or approximately two-thirds of the 71 combined versions, were performed for placenta previa. Of these, 16 were marginal, 14 were partial, and 15 complete, practically an even distribution. Three of the patients died, giving in combined version

TABLE 1		
Indications	No Cases	Maternal Mortality
Placenta Previa		
Marginal	16	2
Partial	14	0
Complete	15	
		Total 67
Premature Separation of the Placenta	12	2 or 16.7
Preeclamptic Toxemia	5	0
Eclampsia	3	0
Hydramnios and Anencephaly	2	0
Prolapsed Cord, Prolapsed Cord and Transverse, Transverse, Polyarticular Arthritis, 1 Each with 0 Mortality		

a mortality of 6.7 per cent for placenta previa. Our death rate, therefore, is similar to that recorded in Braxton Hicks version by certain recent writers. Among these are Schnitzer³, who reports a death rate of 6.9 per cent from the Doederlein Clinic in Munich, 9 per cent as quoted by Hogler⁴ from the Second Woman's Clinic in Vienna and 8 per cent as compiled from the study of 2,048 cases collected by von Ammon⁵. Better results have been reported by Thuemke⁶ who gives in 42 cases a mortality of 2.4 per cent. The best statistics ever appearing in the literature not only for combined version, but for placenta previa treated by any method, were those of Stratz⁷, who in 1915 described 110 cases delivered personally, practically all by Braxton Hicks version, with a loss of one mother, a death rate of 0.9 per cent. Such a record is possible only in the hands of a single operator possessed of unusual judgment and skill and cannot be duplicated in a clinic where the work is done by different members of the staff.

Two of our three deaths occurred in patients with marginal implantation and the other in a case of complete previa. Since all three patients who died presented points of interest and instruction, I shall here describe them briefly.

The first case, aged forty, a para vii, entered the hospital in the thirtieth week of pregnancy, not in labor. She had bled a slight amount the day before. The cervix was two fingers dilated and the os was covered by a complete placenta previa. A Braxton Hicks version was performed and a stillborn child weighing five pounds and one and a half ounces was deliv-

ered one hour later Vigorous attempts were made to liberate the arms and the aftercoming head and a tear into the lower segment of the uterus and broad ligament resulted No donor for transfusion was available and the patient died immediately after delivery

Since the infant weighed slightly over five pounds and the mother was in good condition a Caesarean section could have been undertaken with a high prospect of success to the patient and with more than a fair chance of survival for the child Having however committed himself to combined version, the operator apparently became unduly apprehensive lest he lose the infant and, according to the record, used an undue amount of force in liberating the shoulder and the head It is difficult to understand why, if the cervix had become fully dilated, the delivery of a five pound infant in a para vii should not have been an easy matter When in placenta previa the aftercoming head is arrested by an incompletely dilated os it is far better to disregard the baby and to perforate the skull than to risk a laceration of the cervix and lower segment which may, as in this case, prove fatal We have performed craniotomy for this reason in five instances and now advocate it in all dead or non viable infants when the head does not easily pass the cervix

The second case was that of a para vii aged twenty seven, who entered the hospital with ruptured membranes after twenty four hours of labor Examination in her home by the family physician four hours before entrance was attended by such profuse hemorrhage that he packed the vagina with cotton, using his bare hands Asepsis received little, if any attention On entrance there was a foul vaginal discharge A marginal placenta previa was found and a Braxton Hicks version was performed Spontaneous delivery of a six pound twelve ounce child followed in an hour The patient ran a protracted septic course and succumbed on the thirty ninth day In this instance a Caesarean section followed by hysterectomy with free drainage might have saved her life.

The third case was that of a para xvii, aged thirty nine who entered at full term She had bled one day before entrance and had been examined twice outside by the local physician A marginal placenta previa was found and a Voorhees bag was introduced She developed an intra partum infection with a temperature of 101.4 degrees The bag was removed, having been in place six hours, and a Braxton Hicks version performed The patient delivered herself spontaneously one hour later of a nine pound one and a half ounce stillborn infant She died on the seventh day of puerperal sepsis and embolic pneumonia As in the second case Caesarean section followed by hysterectomy might in view of the subsequent course have considerably improved her chances of recovery

If we consider these three fatal cases judicially we ask ourselves if a point has not been made in favor of Caesarean section in placenta previa under all circumstances We must concede that the first patient who died of a ruptured uterus would probably have survived, as would her infant, had she been subjected to abdominal delivery On the other hand, unless followed by hysterectomy, Caesarean section in the two infected cases would only have killed the patients more promptly Extraordinarily good results have been reported by Bill* who records 104 patients with placenta previa, 82 of whom were delivered by Caesarean section, with a mortality for the complete series of only 1.92 per cent. Unfortunately, however the case for abdominal delivery, as set forth in the recent literature, is not so favorable. Among 27 Caesarean sections reported by Thiemke the death rate was 7.4 per cent At the Döderlein Clinic 11.3 per cent of the women having placenta previa and subjected to extraperitoneal section died and 28.5 per cent of those undergoing transperitoneal hysterotomy von Ammon reports a death rate of 7.3 per cent in 2320 operations In sixty seven cases of Caesarean section for placenta previa at our clinic there was a mortality of 5.9 per cent Our cases were carefully selected and the operations were performed upon women in good condition who were all known, through vaginal examination actually to have placenta previa, with living, viable and normal children and were done largely in the interest of the infant. In our institution women with dead non viable or deformed children have been delivered by Braxton Hicks version with or without preliminary metrorrhysis, depending upon the dilatation of the os, since the welfare of the infants may be disregarded. If the patient survives, and we believe that her chances of recovery are at least equal to those following Caesarean section provided that the operation is skillfully performed and for the proper indications, the question of repeated abdominal hysterectomy in subsequent normal pregnancies is not raised, and she may like any other woman have her later babies through the pelvis It has always appeared illogical to perform Caesarean section to accomplish the delivery of an infant which had no chance of survival, provided that a less radical procedure could be adopted without increased risk to the mother Although this method has been applied under these conditions to all types of placenta previa we are now considering the advisability of simple rupture of the membranes in marginal implantation since all authorities record a low maternal mortality and the procedure entails the least manipulation Since in rupture of the membranes the reported fetal mortality is about 40 per cent, it should not compete with Caesarean section if the child is living viable and normal

Premature separation of the placenta Twelve cases were delivered by combined version with two deaths, a mortality of 16.7 per cent

The first patient who died was a para ix, aged thirty-nine, who entered the hospital in the twenty-eighth week of pregnancy. The uterus had attained the size of a full term and was board-like and tender. A diagnosis of uteroplacental apoplexy was made and a Braxton Hicks version was performed, the cervix being two fingers dilated. Thirty-five minutes later a stillborn infant weighing six pounds was delivered and the patient died immediately afterward.

The second was a primipara of thirty-two in the thirty-sixth week of pregnancy. The diagnosis of uteroplacental apoplexy was followed by rupture of the membranes, tight gauze packing of the cervix and vagina and the application of a Spanish windlass abdominal binder. The patient was suffering from fulminating toxemia and developed suppression of urine and jaundice. At the end of twelve hours, since the methods already employed had failed to induce labor, a Braxton Hicks version was performed. This also failed to bring about definite uterine contractions and the patient died undelivered.

Although our series of cases of premature separation treated by combined version is small, the results do not lead us to continue the practice. It is doubtful if intrauterine manipulations of any extent are advisable in the presence of complete or partial separation of the placenta, especially if associated with toxemia.

Toxemia In five patients who developed toxemia in the middle trimester of pregnancy and in three eclamptics labor was induced by the Voorhees bag and finished by Braxton Hicks version. The termination of pregnancy in such individuals without resorting to the more radical procedure of abdominal or vaginal hysterotomy has always been a problem. Castor oil, pituitary extract and rupture of the membranes do not usually produce results. The metreurynter alone is often unsuccessful, for even if it should excite uterine contraction and be expelled, labor may come to a standstill and one find on examination a thick cervix which has been stretched only enough to allow the passage of the bag. Our present procedure is to insert a metreurynter of a diameter equal to the estimated size of the fetal head, taking particular care not to rupture the membranes and to leave it in place for from twelve to twenty-four hours. The cervix is then found to be considerably softened and sufficiently dilated to permit bipolar version. Once the fetus is turned, labor proceeds at a satisfactory rate. Since the fetus is non-viable, if the head becomes arrested at the cervix, we do not hesitate to perforate it. In the toxemic and eclamptic group there were eight cases with no maternal mortality.

Other indications Two patients with acute hydramnios and anencephalic monsters, two with transverse presentation, one complicated by prolapse of the cord, one with prolapse of the cord in a vertex presentation, and one with polyarticular arthritis, all with dead or non-viable infants have been delivered by Braxton Hicks version without a maternal death.

OBSTETRICAL STATUS OF THE MOTHERS

Sixteen of our seventy-one patients were primiparae and fifty-five were multiparae. In ten the membranes had ruptured spontaneously, in ten they were ruptured artificially when a Voorhees bag was introduced and in fifty-one they were ruptured at the time of the Braxton Hicks version. In twenty cases the cervix was prepared by the insertion of a Voorhees bag. The average time the bag remained in the cervix was ten hours and thirty minutes. The shortest time was forty-five minutes and the longest thirty hours. In eight cases the os was one finger dilated when bipolar version was performed, in forty-three cases it was two fingers, in eleven cases three fingers, in seven cases four fingers, and on two occasions the dilatation was not stated. Table 2 shows the time interval

TABLE 2
TIME INTERVAL BETWEEN BRAXTON HICKS VERSION
AND DELIVERY

Less than 15 Minutes	
15-30	2
30-45	6
45-60	10
1-2 Hours	2
2-3 "	11
3-4 "	9
4-5 "	12
5-6 "	1
6-7 "	2
7-8 "	3
Over 8 "	9
Not Stated	1
Died Undelivered	1
Shortest Time 5 Minutes	
Longest Time 20 Hours	

70 P. C. Delivered in from 30 Minutes to 4 Hours

between the completion of combined version and delivery. It will be noted that while the extremes are five minutes and twenty hours, in 70 per cent labor was terminated in between thirty minutes and four hours. The average interval in the eight toxemic and eclamptic cases, however, was nine hours.

POSTPARTUM HEMORRHAGE

There were twelve cases of postpartum hemorrhage, an incidence of about one in six, with two deaths. Both of these fatal cases already have been summarized (Table 3). In four instances the bleeding came from the cervix alone, in five instances from the uterus alone,

and in three cases from both structures. The cervix, then, was torn seven times or once in every ten cases delivered by Braxton Hicks version. Here we have additional evidence that bipolar version is no operation for the general practitioner. It should be noted, however, that these accidents occurred in our earlier cases. Since then, due to improvement in

FETAL MORTALITY

The same mechanical factor which checks bleeding in placenta previa so surely, the pressure of the half breech upon the placenta, also militates against the infant's chances of survival since it actually sits upon at least a portion of its own blood supply. It is not surpris-

TABLE 3
POSTPARTUM HEMORRHAGE

Case No	Diagnosis	Source	Cervical Suture	Pack	Man Re-moval Plac	Int Douche	Trans	Result
1	P Sep Plac	Ut	0	Ut	0	0	0	Died
13	Marg Prev	Ut	0	0	+	0	0	Well
14		Cx	+	Vag	0	0	0	
16		Ut	0	0	0	+	0	"
17		Ut and Cx	+	Ut.	0	0	0	
18	P Sep Plac	Cx.	+	0	0	+	0	
19	Comp Prev	Ut. and Cx.	+	Ut.	0	0	0	Died
21		Ut.	0	Ut	0	0	0	Well
25	Pro Cord	Cx.	+	0	0	0	0	
26	Comp Prev	Ut and Cx	+	Ut.	0	0	0	
33	Par Prev	Cx	+	0	0	0	0	"
64	Marg Prev	Ut.	0	0	0	0	+	

technique, we have had thirty-eight consecutive cases with no cervical lacerations. During this time the only case of postpartum hemorrhage resulted from atony of the uterus.

FEVER IN THE PUERPERIUM

As measured by our standard of a temperature of 100.4 degrees or over for any two successive days in the puerperium, twenty-one cases or 29.6 per cent were febrile. This is about six times higher than the general morbidity for the hospital which ordinarily runs about 5 per cent. (Table 4) The morbidity following

TABLE 4
MORBIDITY

(Temperature of 100.4 or Over for Any Two Successive Days of the Puerperium)

All Cases of Braxton Hicks Version	29.6 P C
General Hospital Morbidity	5.0
Placenta Previa	
45 Braxton Hicks Version	26.7 "
67 Caesarean Sections	43.3 "

forty-five Braxton Hicks versions in placenta previa was only 26.7 per cent, while that following sixty-seven Caesarean sections for the same indication was 43.3 per cent, a ratio of two to three. The morbidity after Braxton Hicks version for placenta previa therefore is considerably less than that following Caesarean section for the same indications.

ing therefore that the fetal mortality in Braxton Hicks version is exceedingly high. (Table 5)

TABLE 5

STILLBIRTHS AND NEONATAL DEATHS

Dead or in Poor Condition Prior to Braxton Hicks Version	16
Non Viable (Under 4 Pounds)	30
	46
Viable and Living at Beginning of Operation	97
Survived	8
Died with Mother Undelivered	1
Stillborn	14
Neonatal Deaths	4
Mortality for Viable and Living Infants	70 P C
Reasons for Operation with Viable and Living Infant	
Actual or Suspected Infection	3
Alarming Hemorrhage	4
Choice of Operation Unexplained	20

In our series of seventy-three infants, including two pairs of twins, there were sixteen cases where the fetus was dead or in poor condition and thirty where it was non-viable, that is under four pounds making a total of forty-six infants who could not have been saved by any method of delivery. Of the twenty-seven that were living and viable at the time of operation eight survived. Table 6 indicates that all of the surviving infants were born to mothers who had

placenta previa, that the longest time interval between version and birth was one hour and thirty minutes, and that all weighed at least four pounds and ten ounces. Of the fatalities one infant died with the mother undelivered, fourteen were stillborn and there were four neonatal deaths, giving a mortality of 70 per cent among infants who might possibly have survived had some other method of delivery been selected.

TABLE 6
SURVIVING INFANTS

Case No	Diagnosis	Elapsed Time Version to Delivery	Weight
3	Par Prev	1 hour	4 lbs 10 oz
7	Comp Prev	35 minutes	5 lbs 6 oz
9	Comp Prev	20 "	6 lbs 4 oz
14	Marg Prev	20 "	5 lbs 7 oz
17	Marg Prev	1 hour 30 minutes	5 lbs 13 oz
21	Comp Prev	45 minutes	11 lbs 6 oz
31	Marg Prev	40 "	5 lbs 6 oz
37	Marg Prev	40 "	4 lbs 10 oz

Three of these babies were delivered by Braxton Hicks version on account of actual or suspected infection, although as we have already seen, Caesarean section with removal of the uterus would have been a more logical procedure. Four were delivered on account of alarming hemorrhage which permitted no time for abdominal operation and in twenty, the choice of operation was unexplained. Were we to assume, however, that Caesarean section would have guaranteed the lives of all these infants we would be in error. Study of our series of sixty-seven abdominal deliveries shows that of sixty-eight infants, since there was one pair of twins, eight were stillborn and eight died, a mortality of 23.5 per cent. Interference with the fetal blood supply and prematurity are frequent factors in placenta previa and cannot be entirely avoided by any particular method of delivery. A fetal mortality of 23.5 per cent, however, is far better than one of 70 per cent, and we must conclude that a considerable number of these twenty babies could have been saved if Caesarean section had been selected instead of Braxton Hicks version.

SUMMARY AND CONCLUSIONS

1 Seventy-one cases of Braxton Hicks version are reported.

2 In forty-five cases of placenta previa thus treated there were three deaths, the maternal mortality being 6.7 per cent. In twelve cases

of premature separation of the placenta there were two deaths, or a mortality of 16.7 per cent, while in the remaining fourteen cases there were no deaths.

3 In the entire group postpartum hemorrhage occurred once in every six cases and laceration of the cervix in every ten. In the latter half of our series there were no cervical tears requiring suture, thus indicating that we have profited by our earlier errors.

4 The puerperal morbidity following Braxton Hicks version was about six times the general hospital febrile rate. In placenta previa, however, the postoperative morbidity of Braxton Hicks version was only two-thirds that of Caesarean section.

5 The mortality for viable and living infants was 70 per cent. In twenty of our cases, Caesarean section would probably have been a better operation, since the infants were living, viable and normal and the mothers in good condition.

6 Braxton Hicks version in all three types of placenta previa invariably arrests the hemorrhage. Once turned, the remainder of the delivery must be left to nature to avoid cervical laceration. In dead or non-viable infants, should the aftercoming head be arrested in the os, craniotomy will spare the cervix.

7 Braxton Hicks version in our opinion is still the operation of choice in partial and complete placenta previa when the infant is dead, non-viable or a monster. Under like circumstances marginal placenta previa can probably be treated to better advantage by simple rupture of the membranes. When the infant is living and viable, Caesarean section is indicated regardless of the type of placenta previa.

8 Braxton Hicks version preceded by metrorrhysis for from twelve to twenty-four hours has proved a satisfactory method of terminating pregnancy for toxemia or other indications in the middle trimester of pregnancy.

REFERENCES

- 1 Hicks J. Braxton. On Combined External and Internal Version. London: Longmans Green & Company, 1864.
- 2 Jelliffe H. A Manual of Midwifery. Baltimore: William Wood & Company, 1910.
- 3 Schnitzer H. Placenta praevia. Arch f Gynäk. 142: 178, 1930.
- 4 Högl H. Zur Behandlung der Placenta praevia. Ztschr f Geburtsh u Gynäk. 96: 539, 1929.
- 5 v Ammon E. Die Mortalität der vaginalen und abdominalen Entbindungsmethoden bei Placenta praevia. Ztschr f Geburtsh u Gynäk. 97: 261, 1930.
- 6 Thiemke G. Zur Behandlung der Placenta praevia. Monatsschr f Geburtsh u Gynäk. 87: 110, 1931.
- 7 Stratz C H. Behandlung der Placenta praevia. Ztschr f Geburtsh u Gynäk. 74: 713, 1914-15.
- 8 Bill A. H. Placenta previa. Am J Obst. & Gynec. 21: 227, 1931.

A CLINICAL EVALUATION OF THE POSITIVE SKIN
REACTION IN ASTHMA, URTICARIA, VASOMOTOR
RHINITIS AND SEASONAL HAY FEVER*

BY ABRAHAM COLMES, M.D.†

THAT the diagnostic import of the protein skin test is not infallible and that frequent irregularities exist in the relationship between the skin reacting allergen and the patient's symptoms, has been recognized since the early studies on human hypersensitiveness.

In 1916 Blackfan¹ called attention to the occurrence of "egg" eczema in children who had negative skin tests to egg. In 1918 Walker² pointed out that the positive skin tests cannot always be incriminated as causative of the patient's symptoms, an observation subsequently borne out by Schloss³, who also added that a negative skin test is not conclusive. O'Keefe⁴ substantiated Schloss's findings, stating that in eczema of infancy some clinically sensitive patients fail to give a response to protein tests.

Additional evidence of the same nature has been subsequently presented by Kern⁵, Martum Rackemann⁶, Feinberg⁷, and more recently by Stevens⁸, Rowe⁹, and Hill¹⁰, in communications dealing with the variances in the relationship between the skin tests and the patient's symptoms. And yet, notwithstanding such divergencies, "skin testing" has perceptibly grown in popularity with allergist and clinician alike its dependability apparently resting on the findings of a "positive reaction." This positive reaction has been exhaustively treated in innumerable publications, including all of the recent textbooks on allergy.

A great deal of confusion however has been created in the minds of the readers through the method of recording the skin tests. Most authors seem to be concerned with the percentages of "positive skin reactors" in their respective clinics, while little mention is made of the frequency with which the skin reacting allergen is of actual etiologic significance. To cite but few examples in their respective studies on asthma Walker reports 48 per cent² of positive reactions, Rackemann 45 per cent⁶, Cooke 73.4 per cent¹¹, Peschkin 79 per cent¹⁴, Rowe 91 per cent¹⁵ etc. which figures, while undoubtedly correct fail to indicate the rôle of all these reacting proteins in the causation of the patient's symptoms.

While to the scrutinizing student of allergy such figures are of academic interest to the casual reader they are intriguing, for they suggest a high incidence of important positive reactions in allergy.

From the Anaphylactic Clinic of the Beth Israel Hospital, Boston, and from the Anaphylactic Clinic of the Massachusetts General Hospital, Boston.

(Colmes, Abraham—Assistant Visiting Physician, Beth Israel Hospital. For record and address of author see "This Week's Issue" page 742.)

In this communication an attempt has been made to evaluate the "positive reaction" in the light of its etiologic significance in several of the allergic manifestations in man. The data here presented were obtained from the records of 250 patients with bronchial asthma, 93 with urticaria, 222 with perennial vasomotor rhinitis and 314 with seasonal hay fever. All allergens which gave positive skin reactions whether by the scratch or intradermal methods of testing were placed in one column and their relationship to the patient's symptoms noted in another. For the sake of comparative study, we have placed in an adjoining column all other allergens which proved to be clinical offenders, though failed to react on the patient's skin.

In presenting these data we are aware of the incidental pitfalls in any attempt to evaluate with certainty the causative agent in allergy. First, the frequency of multiple sensitivities precludes the possibility of a precise diagnosis, unless all offenders are recognized and eliminated at the same time which is often an impossible task. Secondly, great variability in skin reactions may occur when the test is performed by a different technique¹⁶ or on a different site¹⁷. We have considerable data on hand in indicating that variations may also occur when the skin test is repeated by the same technique, but at a different time. The variability in the degree of the patient's general sensitivity as influenced by acute and chronic infections, fatigue, constipation, metabolic endocrine, psychic and nutritional disturbances may frustrate all efforts at the establishment of a correct relationship between the symptoms and the skin reacting allergen. And yet, the prominence which the skin test has been accorded in spite of all existing exceptions, permits a free discussion of the subject on a similar prerogative basis.

Tables 1, 2, 3 and 4 treat of the patients with asthma, urticaria, perennial vasomotor rhinitis and seasonal hay fever respectively.

TABLE 1
SKIN TESTS AND SYMPTOMS COMPARED
IN ASTHMA
(250 Patients)

	Tests Positive	Clinically Important	Clinically Important but Tests Negative
Foods	750	184 or 25%	159
Animal Danders	428	128 or 30%	66
House Dust	306	223 or 73%	43
Pollens	197	134 or 68%	18

Altogether in the 250 patients with asthma, 1685 positive skin reactions to foods and inhalants occurred. Of these only 679, or forty per cent, were related to the patient's symptoms. At the same time 286 non-reacting allergens proved to be of equal clinical importance as determined by the history of the case and by trial and error elimination diets in this group. As noted from this table, more positive reactions have occurred to inhalants than to foods, 935 and 750, respectively, and that fifty-three per cent of the reacting inhalants and only twenty-five per cent of the reacting foods were of etiologic significance.

TABLE 2
SKIN TESTS AND SYMPTOMS COMPARED
IN URTICARIA
(93 Patients)

	Tests Positive	Clinically Important	Clinically Important but Tests Negative
Foods	736	32 or 4%	74
Inhalants	82	2 or 2%	2

In ninety-three patients with urticaria, 818 positive reactions were obtained to foods and inhalants combined. Of these only thirty-four or about four per cent were related to the patient's symptoms, as contrasted with another seventy-six non-reacting allergens which were found to be equally important clinical offenders. As would be expected, here the ratio between the positive reactions to foods and inhalants was more than nine to one, or 736 to eighty-two, respectively. It is significant that where extrinsic factors were at play in this group, the specific allergen was discovered more than twice as often through the history of the case or through trial and error diets, than through skin tests, seventy-four to thirty-four respectively.

TABLE 3
SKIN TESTS AND SYMPTOMS COMPARED
IN VASOMOTOR RHINITIS
(222 Patients)

	Tests Positive	Clinically Important	Clinically Important but Tests Negative
Foods	345	25 or 7%	37
Animal Danders	270	57 or 21%	9
House Dust	182	119 or 66%	28
Pollens	110	85 or 77%	4

In vasomotor rhinitis, 907 positive skin reactions to foods and inhalants were obtained in 222 patients. Two hundred and twenty-seven of these or about twenty-five per cent, were

clinically related to the patient's symptoms, while another seventy-eight non-reacting allergens proved to be of equal clinical importance. While the ratio of the reacting foods to inhalants in this group is 1 to 16, or 345 to 562, respectively, the corresponding ratio of their clinical importance is that of 1 to 8, or 25 to 202, respectively.

TABLE 4
SKIN TESTS AND SYMPTOMS COMPARED
IN HAY FEVER
(314 Patients)

	Tests Positive	Clinically Important	Clinically Important but Tests Negative
Pollens	314	310 or 99%	4

Of 314 patients with seasonal hay fever, 310 gave positive reactions to the offending pollens (pretty close to 100 per cent) and only four patients failed to show a skin reaction to the exciting pollens.

COMMENT

These figures are interesting and instructive. They point to the futility of resting our allergic studies on the skin test by itself and make us question the rational of prescribing specific diets or suggesting the institution of environmental changes on the basis of the positive skin reaction alone. If, as we believe to be the case, our figures correspond to those of other workers in allergy, then at best we can expect forty per cent of the positive reactions in asthma, twenty-five per cent of the positive reactions in vasomotor rhinitis and only four per cent in urticaria to be of some clinical value. The rest of the positive reactions must be placed in the group of the unexplained phenomena in allergy. If we add the figures for the combined groups with asthma, urticaria, and vasomotor rhinitis, we have a total of 565 patients in whom 3405 positive skin reactions occurred. Of these only 940 or twenty-seven per cent were of clinical importance.

The preponderance of positive reactions in pollen disease is striking. This may be due either to the greater skin sensitizing power of pollen antigens over other allergens, or to the fact that our knowledge of the pollinating flora for a given district helps us in selecting only the suspected pollens for skin testing, or to both. In any event, the skin test in pollen disease remains outstanding as an aid in diagnosis.

In presenting these data, we have no intention of belittling or discrediting the value of the skin test. Were it not for the occurrence of the positive skin reaction, the whole concept of clinical allergy and of the relationship of protein

hypersensitiveness to certain distinct human ailments, would have been lost. Furthermore, significant positive reactions do occur and with sufficient frequency to justify the procedure of skin testing. What we learn, however from this study is the need of departure from the traditional method of recording skin tests on the basis of "positive reactors" and substituting this by figures which point to the etiologic significance of each individual positive reaction. Only in this way can the intelligent application of the skin test be disseminated, so that the less experienced in this work may not accept the dogma that dermal application of protein extracts can divulge the intricacies of all human hypersensitiveness.

SUMMARY

The records of 250 patients with asthma, 93 with urticaria, 222 with perennial vasomotor rhinitis and 314 with seasonal hay fever have been reviewed and the relationship of the positive reactions to the patients' symptoms noted.

In the group with asthma, forty per cent of the reacting proteins were of diagnostic importance, in urticaria, four per cent, in perennial vasomotor rhinitis, twenty five per cent while in seasonal hay fever nearly 100 per cent

reacted to the pollens which were causative of their disease.

These results indicate that, in the study of allergic diseases, the positive skin reaction can not be accepted as a sole basis for determining the offending factor.

REFERENCES

1. Blackfan K D. Cutaneous reaction from proteins in eczema. *Am. J. Dis. Child.* 141 1916
2. Walker E O. A clinical study of 400 patients with bronchial asthma. *Boston M. & S. J.* 179:258 1915.
3. Schloas, O. M. Allergy in infants and children. *Am. J. Dis. Child.* 19:433 1920
4. O'Keefe E B. Protein sensitivity in children with negative cutaneous reactions. *J. A. M. A.* 89 1120 1923.
5. Kern, R. A. The interpretation of skin tests in the diagnosis of bronchial asthma. *Atlantic M. J.* 30 230 1926-7
6. Mayum C. K. The value of skin tests in the diagnosis of asthma. *Proc. Staff Meet. Mayo Clin.* 4 88 1929
7. Rackemann F M. Studies in asthma. *J. Allergy* 2 113 1930
8. Feinberg S M. The uses and limitations of skin tests in allergy. *J. A. M. A.* 95 1665 1920
9. Stevens, F. A. A comparison of pulmonary dermal sensitivity to inhaled substances. *J. Allergy* 4: 95 1932 34.
10. Rowe, A. M. An evaluation of skin reactions in food sensitive patients. *J. Allergy* 6:126, 1932 34
11. Hill, L. W. Chronic atopic eczema (neurodermatitis) in childhood. *J. A. M. A.* 103:1420 1924.
12. Rackemann, F. M. Studies in asthma. *J. Lab. & Clin. Med.* 15:1185 1927
13. Cooke R. A. Studies in specific hypersensitivity. *J. Immunol.* 7:147 1923.
14. Peckin M. M. Asthma in children. *Am. J. Dis. Child.* 31:762 1937
15. Rowe, A. M. The treatment of bronchial asthma. *J. A. M. A.* 84:1903 1915
16. van Leeuwen, B. Allergic Diseases. Philadelphia: J. B. Lippincott Company. Pp. 35 and 36 1935
17. Alexander H. L. Physical allergy. Report of a case with successful treatment. *J. Allergy* 144 1930

FRACTURE OF THE CORACOID PROCESS
OF THE SCAPULA

BY WILLIAM PEARCE COUES, M.D.*

ISOLATED fracture of the coracoid process is so unusual that the report of a case seems justified. The anatomic situation of the "crow's beak" is probably responsible for this, the process being situated more deeply than the other bony landmarks about the shoulder.

According to most authorities, the coracoid process develops from five centers of ossification, becoming solid at seventeen years of age. In considering injuries of the coracoid we must remember the attachments to its tip, namely the pectoralis minor coracobrachialis and the short head of the biceps. The coracoacromial ligament from all accounts is important concerning this fracture. The base of the process is so situated as to be well protected from ordinary shoulder trauma.

In conversation with several roentgenologists I found that some had seen no instances of this fracture, and others, perhaps one or two. Some good textbooks on surgery make no mention of it and in treatises devoted to fractures it is given scant attention on account of its rarity, some not even mentioning it.

Report of case. Mrs. N. W. a widow fifty years of age seen on August 11 1933. The past history was unimportant save for the fact that operation had been done five years ago for carcinoma of the left breast. There was a good result with no recurrence noted at the time of this injury.

The story of the accident was that four days before being seen she had fallen down a flight of stairs striking over the anterior left shoulder region and the left side.

Examination showed slight ecchymosis and tenderness over the left side in the anterior axillary line. There was marked tenderness over the shoulder region especially anteriorly in the area of the subacromial bursa. Careful palpation of the shoulder region showed no crepitus, and no definite sign of fracture was made out. There was marked limitation of shoulder motions the limitation being almost exactly as is seen in an acute traumatic subacromial bursitis. A tentative diagnosis of this was made at this time. The chest was strapped and the arm was put up with a sling and circular.

A few days later x-ray examination showed no fractures of the ribs. The coracoid process was broken almost completely through near the base, with considerable displacement, the larger fragment pointing quite sharply downwards. Her recovery of motion was fairly prompt. In about three weeks pain had largely disappeared about the shoulder with tenderness much diminished.

In November 1934 examination showed no atrophy of shoulder muscles and no tenderness. All motions

*Coes, William Pearce—Former Instructor in Surgery Tufts C. H. H. Medical School. For record and address of author see This Week's Issue page 143

of shoulder were performed to normal limits. It is of interest to note in this case that the clinical findings at the time were consistent with a traumatic subacromial bursitis, and it is entirely possible that the patient may have had this as well as the fracture of the coracoid.

Pringle¹ in his article states there is no displacement of fragments in this injury unless the coracoclavicular ligament is ruptured.

Cotton² states the injury to be very rare and that appreciable displacement is improbable, except as accompanying luxation.

There seems to be varying opinion expressed as to a question of bony union in this injury, some authorities stating that union is usually by bone and others saying that it remains fibrous.

Epiphyseal separation has occasionally been noted, Stimson³ reporting a case in a child of six years which was verified by autopsy.

Apparently diagnosis can be tentatively made after shoulder injury where there is marked pain on forceful voluntary adduction of the arm, and flexion of the forearm.

Gurlt stated that of six specimens examined, bony union was found in only one. There have

been occasional reports of the injury from muscular violence alone, due to pull of the short head of the biceps and the coracobrachialis and lesser pectoral muscles. In cases of injury with a direct blow or fall on the anterior region of the shoulder, giving symptoms of a subacromial bursitis, this very rare injury must be kept in mind.

Summary A case of fracture of the coracoid process of the scapula is reported and the symptoms described. A partial review of the literature of the subject is given.

REFERENCES

- 1 Pringle J H. Fractures and Their Treatment. London: Hodder & Stoughton. P 244. 1910.
- 2 Cotton F J. Dislocations and Joint Fractures. Philadelphia: W B Saunders Company. P 176. 1913.
- 3 Stimson Lewis A. Fractures and Dislocations. New York: Lea & Febiger. P 235. 1917.
- 4 Gray Henry. Anatomy Descriptive and Applied. Philadelphia: Lea & Febiger. P 176. 1913.
- 5 Preston Miller E. Fractures and Dislocations: Diagnosis and Treatment. St. Louis: C V Mosby Company. P 38. 1925.
- 6 Petty, Orlando H. Fracture of the coracoid process of the scapula caused by muscular action. Ann Surg 46: 427. 1907.
- 7 Roberts and Kelby. Treatise on Fractures. New York: J B Lippincott Company. P 313. 1921.
- 8 Walton Albert J. Fractures and Separated Epiphyses. London: Edward Arnold. P 116. 1910.

RESULTS OF PNEUMOTHORAX

Of fifty sanatoria which volunteered to collaborate, twenty-four furnished data on pneumothorax sufficiently complete and suitable for study and tabulation. The study divided itself into two parts, the first was designed to ascertain in what proportion of patients pneumothorax therapy had been attempted, the proportion of "operative failures" and other related information, while the second part consisted of detailed case records, the total number of which submitted was not so large, probably because of the exacting criteria required.

TERMS DEFINED

To obtain comparable data it was necessary to define a number of terms. *Intentional* termination of pneumothorax was assumed when refills had been allowed to relapse. Termination was considered *unintentional* when obliterative adhesions had encroached on the pleural cavity. The term *pneumothorax treatment* required that there must be a demonstrable pleural sac and the patient must have received at least 100 cc of air or gas at regular intervals over a period of at least three months.

Very important, not only for this study, but for consideration of pneumothorax in general, was the effort of the Committee to define precisely what is meant by *effective collapse*. Keeping in mind clinical, roentgenographic and laboratory criteria, the Committee decided that the following three conditions should be met, or at least two of them, when the third was doubtful or not stated:

- 1 Disappearance of symptoms
- 2 Disappearance of bacillary sputum

3 Demonstrable closure of cavities, especially roentgenographically.

STATISTICAL DATA

The incidence of pneumothorax reported by the sanatoria varied from 1 per cent to 34 per cent with an average of approximately 10 per cent. Twice as many females as males received pneumothorax treatment and by far the largest number was between the ages of 20 and 35—an age distribution corresponding to the age period of greatest frequency of pulmonary tuberculosis.

Approximately 40 per cent of the cases which received pneumothorax treatment showed considerable cavitation, that is, destruction involving the collapsed or "treated" lung, and 25 per cent moderate cavitation, making a total of about two-thirds having more or less marked pulmonary destruction prior to beginning pneumothorax therapy.

The contralateral lung appears to have been essentially uninvolved in about one-third of the cases studied, slight lesions were recorded in a little over one-third, and moderate ones in a smaller group. Very few cases with contralateral cavitation were recorded.

Effective collapse was obtained or maintained in 38 per cent of the cases. In nearly two-thirds of the series it was necessary to discontinue treatment prematurely, most frequently because of the development of pleural complications. Two factors, small proportion of cases susceptible to effective collapse, and forced and premature discontinuance of collapse, appear to limit most seriously the success of pneumothorax therapy.

(Continued on page 733)

MEDICAL PROGRESS

PROGRESS IN GASTRO ENTEROLOGY FOR 1934

BY E. S. EMERY, JR., M.D.*

(Continued from page 684, issue of April 11)

Cancer of the Stomach

W. Cramer gives some interesting data concerning cancer of the stomach in an address before the International Cancer Congress in Madrid in October, 1933. He states that only in England does the mortality from cancer of the stomach reach such a low figure as twenty five per cent of the total cancer mortality. The United States and Australia come next with a mortality of 42.8 per cent and 42.7 per cent respectively. In countries where the mortality of gastric cancer is higher, the incidence may reach seventy per cent of the total cancer mortality. Wherever such an analysis is made cancer of the stomach is more frequent in the country districts than in the urban population. According to the author this seems to exclude the possibility that differences in the accuracy of diagnosis are responsible for these wide variations and to show that they must be due to differences in habits or conditions of life. To support this idea he quotes the analysis made by Dr. Stevenson ten years previously. This analysis showed that the incidence of cancer of the upper digestive tract increased as one descends the social scale whereas the incidence is almost the same in all classes for the lower part of the digestive tract. The author believes, therefore, that the stomach is exposed in certain social classes to certain conditions which lead to cancer but which are avoided to a large extent by the upper social classes.

Flynn and Duckett believe from their study of postoperative cases and autopsied cases that subtotal resection for cancer of the stomach, even in advanced stages, has a low primary mortality, a good chance of cure. Therefore, they believe that physicians should not hesitate to advise surgery even in patients who appear to be in an advanced state of the disease.

Dahlgren describes an interesting case in which there was an endothelioma which was attached to the stomach by means of a pedicle. This weighed two kilograms at the time of removal and the histologic diagnosis was that of lymphangio-epithelioma. He also mentions twelve similar cases which he had collected from the literature.

Cramer W.: The prevention of cancer. *Lancet*. 11 (Jan.) 1934.
Flynn, C. W., and Duckett, J. W.: Results of subtotal gastrectomy for carcinoma. *Am J Surg* 24:746 1934.
Dahlgren, L.: Endothelioma of the stomach. *Acta chir Scandinav* 75:461 1934.

Emery E. S., Jr.—Associate in Medicine, Peter Bent Brigham Hospital, Boston. For record and address of author see "This Week's Issue" page 743.

Gastric Crises

Fellows discusses a case of dementia paralytica with tabes with gastric crises which was treated by forced spinal drainage. It is a therapeutic axiom to treat a case of dementia paralytica, the tabetic element being neglected temporarily, since, unless properly treated, the patient will die of dementia paralytica before he is incapacitated by the tabes. In the author's case, however, because of the distressing and damaging gastric condition, it was imperative that the treatment be pointed toward relief of a symptom that is associated with the tabetic part of the picture. The treatment was outlined as nearly as possible to conform with accepted forms of treatment for dementia paralytica with tabes complicated by gastric crises, i.e., intensified routine treatment with large doses of arsenicals, shorter courses of bismuth compounds and iodides, later trypanamide and in cases of failure, fever therapy. These measures failed to relieve the gastric crises, and forced spinal drainage was instituted with beneficial results, after which malarial therapy was used. Complete alleviation of the gastric crises with no recurrence to date followed the use of forced spinal drainage.

Fellows, R. M.: Forced spinal drainage in treatment of a case of gastric crisis. *Am. J. Syph. & Neurol.* 18:505 (Oct.) 1934.

PEPTIC ULCER

Etiology of Peptic Ulcer

There has always been a question in the minds of physicians whether trauma might be the precipitating cause of peptic ulcer. Eusterman and Mayo believe that there is adequate evidence to justify the contention that under exceptional circumstances a chronic ulcer of the stomach can have its origin in external, non-penetrating trauma to the epigastric region. In one case fairly characteristic symptoms of a hemorrhagic gastric ulcer developed following a severe blow to the left epigastric region. Roentgenoscopy confirmed the presence of a penetrating ulcer near the lesser curvature five months after the injury. Following hospitalization and intensive medical treatment the lesion had disappeared completely and clinical cure resulted. In any case in which the plain film claims that a gastric or duodenal ulcer followed external trauma, the physician whose opinion is sought should see that the four postulates of Linger and Molinens are satisfied. A second cause of ulcer is chronic trauma from

within The commonest form of ulcer of this nature is that secondary to congenital (non-traumatic) diaphragmatic hernia, foreign bodies in the stomach may also cause ulcer. Such secondary lesions are not indurated as a rule and all tend to heal readily following reduction of the hernia or removal of the foreign body.

C B Morton has continued his study on the cause of ulcer. He placed a segment of jejunal muscle with its mesentery intact around the pylorus. This resulted in a slight increase in the emptying time of the stomach and abnormal gastric contractions. Examination of the duodenum revealed a duodenitis similar histologically to that found in man. He suggests that the duodenitis may be due to interference with normal duodenal regurgitation.

McMaster has performed an end-to-side anastomosis between the open pyloric end of the stomach and the progressively lower levels of the intestine from the duodenum to the colon, inclusive in thirty-five dogs. The intestinal mucosa was increasingly more sensitive to gastric content from the duodenum to the colon. No duodenal ulceration followed gastroduodenostomy. Jejunal ulceration was noted in five of eleven dogs (45 per cent). Ileac ulceration developed in eight of ten animals (80 per cent) after gastroileostomy. Each of ten dogs had marked hemorrhagic colitis subsequent to gastrectocolostomy and usually this led to secondary anemia. The mucosa of the distal half of the colon was much more sensitive to the acid gastric content than was that of the proximal half. Following anastomosis of the stomach to the lower portion of the ileum or colon, the blood chloride and the weight fell rapidly and often there was marked bloody diarrhea. The acid gastric content appeared to be the most important factor in the production of ulceration of the intestinal mucosa near the outlet of the stomach. As a number of intestinal ulcers occurred directly opposite the anastomotic stoma, the element of mechanical trauma from expulsion of contents of the stomach cannot be entirely ruled out. The loss in weight in the animals with the anastomosis in the lower portion of the ileum or colon was due largely to failure of digestion and of absorption of food. (The work of Morton and McMaster supports the theory that peptic ulcer may result from failure of neutralization of the gastric juice which Boldyreff maintains is due to a normal process of regurgitation of the duodenal contents into the stomach.)

However, MacLagan who has made a study of duodenal regurgitation by means of test meals, finds that some of the clinical evidence put forward in the past in favor of duodenal regurgitation does not support this idea. He studied (1) the volume of resting juice, (2) the highest free acidity reached, (3) the emptying time

as shown by the end of the starch reaction or the failure to obtain further specimens, (4) the volume of residue at two hours, if any, (5) total number of specimens withdrawn up to the emptying time, (6) number of specimens which contained bile, (7) number of specimens which contained mucus and (8) the absence or presence of gross hemorrhage during the meal. As a result of the data which he obtained by this means, the author was unable to find any relationship between the hyperacidity and pyloric spasm. Because pyloric spasm is known to occur in peptic ulcer, it has been assumed that there might be an absence of duodenal regurgitation in patients affected with ulcer. Curves containing a high proportion of bile did not show any difference either in type, incidence or motility from those in which bile was completely absent. The evidence tends to suggest that a climbing curve of gastric acidity can no longer be considered a sign of pyloric irritation and, therefore, due to an absence of duodenal regurgitation.

In view of the present association between duodenal regurgitation and peptic ulcer it is interesting that Berg points out that ulcers seem less likely to develop in dogs in which the pancreatic juice has been diverted from the duodenum than those in which the bile has been diverted.

Boldyreff now states that the bile plays no rôle in the neutralization of gastric juice by duodenal regurgitation. He believes that the pancreatic juice is entirely responsible.

Because of the increasing number of experimental studies in which ulcers have developed in animals following diversion of bile, Schnitker and Hass have made a histologic study of the liver in patients affected with peptic ulcer. They studied the cases coming to autopsy with cirrhosis of the liver and those coming to autopsy with peptic ulcer. Altogether they reviewed 158 cases with these diseases and studied 100 control cases coming to autopsy from any cause. They found that slightly more of the ulcer cases showed some histologic change in the liver than the control cases and that these changes were somewhat more marked in patients having peptic ulcer than in the control group. There was insufficient evidence, however, to show that peptic ulcer is associated with histologic changes in the liver.

Because of renewed interest in the neurogenic theory of ulcer there have been numerous articles having to do with this subject.

A L Trowell has studied the relationship of tobacco smoking to peptic ulcer by comparing the smoking habits of fifty men suffering from duodenal ulcer with those of 400 normal controls. He found that men suffering from chronic duodenal ulcer do not smoke on the average more tobacco than normal men. On the other hand,

the practice of inhaling cigarette smoke is more than twice as common among men with ulcer as among normal men

Contrary to this finding, Friedrich believes that the rôle of nicotine in the etiology of ulcer disease has been underestimated. Ulcer disease, especially the prepyloric ulcer, has been on the increase since the War. This increase has been predominately in man. There has likewise been a steady increase in the consumption of tobacco. The author investigated 153 men who were operated upon for peptic ulcer and found that 79.7 per cent of them were pronounced smokers, averaging from twenty to thirty cigarettes a day. Studies of the effect of nicotine directly on the splanchnic vessels and the motility and secretion of the stomach demonstrated that it is capable of altering the normal course of gastric function. The postoperative results were better in persons who had smoked but little or not at all before the operation when contrasted with those who were heavy smokers even after the operation. Nicotine was found to influence the gastric function in the postoperative period as well. In addition to the effect of nicotine a reflex effect must be taken into consideration. The author believes that irritation of the mucous membranes of the mouth results in stimulation of the gastric secretion. Thus smoking may be compared to sham feedings with a resulting flow of gastric juice which cannot be utilized.

Because caffeine stimulates the secretion of gastric juice Hanke employed it for the experimental production of chronic ulcers in cats. For two months the animals were given almost daily subcutaneous injections of from 0.2 to 0.3 Gm. caffeine sodiumsalicylate. They were given their usual plentiful supply of food in the evening. The remnants of the food were removed early in the morning so that, when the injection was made at noon, the cats had had no food or fluid for at least four hours. A new supply of food was not given until six hours after the injection. At the end of two months the stomachs of the cats showed chronic ulcers, the structure of which resembled closely that of human ulcers. The author assumes a primary peptic pathogenesis. He thinks that the ulcers develop as a result of the influence exercised by the excessive amount of acid gastric juice (secreted because of the caffeine injection) on the mucous membrane of the empty stomach. He calls attention to the possibility that caffeine may play a part in the pathogenesis and further development of peptic ulcers in human subjects.

Dodds and his associates have found that the posterior lobe of the pituitary contains a substance capable of producing a severe lesion on the acid bearing area of the stomach. This is efficacious when injected subcutaneously and is

active by mouth. The oxytocic preparation even in large doses will not produce a lesion while the pressor factor in similar doses has a definite action. Although it would appear that the gastrotropic factor may be developed from the other two hormones of the posterior lobe, a definite statement cannot be made until it has been further purified. The authors state that at present it is impossible to know whether the substance plays a physiological part, nor is it possible to state its mode of action. It seems that either the substance has a direct toxic reaction on the cells of the acid-secreting area of the stomach or perhaps it stimulates secretion of hydrochloric acid to a damaging extent. They are performing intensive investigations on the nature and mode of action of the compound.

Associated with the neurogenic theory has been the idea of some that overactivity of the suprarenal glands may be associated with peptic ulcer. However Marafion and his associates found an incidence of gastric ulcer in 1.8 per cent of 160 cases of suprarenal insufficiency (Addison's disease). They investigated the gastric acidity in thirteen patients and found a decrease or suppression of hydrochloric acid in seven, marked hypochlorhydria in two, slight hyperchlorhydria in one and a normal gastric acidity in three.

As a result of examining the stomach of fifteen fetuses of six to nine months of age, Clar believes that heterotopic intestinal mucosa in the stomach may be responsible for the development of chronic peptic ulcer. The stomachs of all the fetuses up to the seventh month presented on histologic studies, either single or grouped typical intestinal crypts. Of three full term infants heterotopic intestinal mucosa was found in only one stomach. Heterotopic intestinal mucosa was not found once in a study of twelve cadavers without a history of gastric disease or in twenty-six stomachs resected for the cure of a duodenal ulcer. The observation of these heterotopic islands in diseased stomachs is a common experience. Thus the author found it six times in ten stomachs resected for gastric ulcer and once in three specimens resected because of pyloric ulcer. Gastritis was not present in any of the cases in which the author found heterotopic islands of intestinal mucosa. These islands were found by the author as well as by other observers to be located most frequently in the pyloric, the prepyloric and the lesser curvature regions. On the basis of his observations the author considers heterotopic intestinal mucosa in the stomach a congenital displacement and not of metaplastic origin. This study is interesting in view of the number of reports that have been occurring in the literature of gastric ulcer which occurs in the stomachs of premature infants or at the time of birth.

Müller has made an interesting study of the

geographic distribution of peptic ulcer. According to the mortality statistics of the United States issued in 1928 there was a greater incidence of death from ulcer among males than females. There was a greater incidence of death from this cause among the white than the colored population. He found that the incidence of ulcer varies from country to country and even localities. There is no evidence that climate plays a rôle in spite of the fact that there is a lessened incidence among the tropics. He does not feel that worry can be a cause, because of the low incidence in Argentina. He was also unable to find evidence of a racial immunity. As a result of his study of the incidence of ulcer in relation to food habits among races, he feels that condiments may be dismissed as a cause. However, he feels that there is some evidence to incriminate malnutrition.

- Eusterman G B and Mayo J G Traumatic peptic ulcer *Am J Surg* 26 74 (Oct.) 1934
- Morton C B Peptic ulcer IX Chronic lesions of the duodenum following experimentally produced pyloric dysfunction *Arch Surg* 28 167 1934
- McMaster P C Effects of diverting gastric contents to lower intestinal levels *Arch Surg* 28 826 (May) 1934
- MacLagan N F Statistical analysis of 389 fractional test meals with special reference to duodenal regurgitation *Quart J Med* 3 321 (June) 1934
- Berg B N Peptic ulcers comparative frequency after deprivation of bile and pancreatic juice *Arch Surg* 28 1067 1934
- Boldyreff W N Acidity of gastric juice and contents of fasting stomach. Factors determining it and short history of the problem *Acta med Scandinav* 82 111 1934
- Schnitzler M A and Hass G M A histologic study of the liver in patients affected with peptic ulcer *Am J Digest. Dis & Nutrition* 1 537 (Oct.) 1934
- Trowell O A The relationship of tobacco smoking to the incidence of chronic duodenal ulcer *Lancet* 1 808 (Apr.) 1934
- Friedrich R Nicotine in the etiology and in the post-operative treatment of ulcer disease *Arch f klin Chir* 179 9 (Feb.) 1934
- Hauke H Experimental production of gastric ulcers by caffeine *Klin Wchnschr* 13 978 (July) 1934
- Marrifson G Sala P and Arguelles G Digestive symptoms in chronic supra-renal insufficiency (Addison's Disease) *Endocrinology* 18 497 (July) 1934
- Clar F Heterotopic intestinal mucosa in the stomach and its rôle in genesis of gastric ulcer *Beitr z. klin Chir* 166 145 (Aug.) 1934
- Mueller H Geographic distribution of peptic ulcer *Am. J Surg* 23 497 (Mar) 1934

Ulcer on the Greater Curvature

Heim reports the removal of four ulcers from the greater curvature of the stomach in five years. All four were proved to be peptic ulcers histologically. He discusses the importance of these cases in relation to the etiology of ulcer. (However, one should remember that the location of an ulcer on the greater curvature is rare and that it is wise to assume that a lesion in this location is malignant, although the x-ray suggests the presence of a peptic ulcer.)

Just has opened the lumen of the duodenum and carefully inspected the duodenal mucosa in a series of sixty consecutive patients operated on for duodenal ulcer. He found that the incidence of multiple ulcerations and corresponding multiplicity of pathologic states is greater than was formerly believed. Twin ulcers ("kissing ulcers" of Moynihan) were observed in forty-six or seventy-six per cent of the cases. Scars in the vicinity of the ulcers were found in eight cases. These were radiating or star-like. In

wall. These, he believes, were the result of coaction of an anterior wall and a posterior wall ulceration. Consideration of this group of cases suggests that multiplicity of lesion is present in 100 per cent of all cases of duodenal ulceration. These observations lend support to von Haberer's opinion that recurrent ulcers after gastric resection are overlooked ulcers. While observations on so small a group of cases do not rule out the existence of a single duodenal ulcer, they emphasize the greater frequency of multiple lesions and the necessity for awareness of this fact on the part of the surgeon. (These findings of Just are of interest to the reviewer because they suggest that although the individual ulcer which develops following surgical drainage of the duodenum appears histologically similar to that in man, the mechanism for the development of the disease in man may be different.)

It would also be interesting to have a similar study made on cases in this country since Kraas, in discussing diseases of the stomach and gall bladder, points out that the process of gastritis in peptic ulcer is much more definite and prominent in Germany than America. It is for this reason that more radical surgery is used in the German Clinics.

- Helm W Ulcers on the lesser curvature of the stomach *Arch f klin Chir* 179 561 (Jan.) 1934
- Just E Multiplicity of duodenal ulcerations and corresponding morbid processes *Arch. f. klin Chir* 179 211 (Mar) 1934
- Kraas E Indications and operative technique in diseases of the stomach and gall bladder as practiced in the clinic of Professor Schmieden *Am J Surg* 25 41 (July) 1934

Complications

Out of 4460 necropsies, Hjort found gastric and duodenal ulcers in 108 cases (2.45 per cent) with fatal hemorrhage in twenty-two or twenty per cent of these (nineteen from gastric, three from duodenal ulcer). According to the local results of necropsy, fourteen cases seemed to be in an operable condition, five in an inoperable condition. Attention is called to the operative difficulty in case of erosion of the splenic artery. While the material supports the view that selected patients having acute grave hemorrhages from gastric and duodenal ulcers may be successfully operated on, the author emphasizes that the general results in half of the cases revealed pronounced vascular or organic disorders. (This work of Hjort is of interest in that it supports the idea which is gradually gaining ground that medical treatment is preferable to surgery in the care of acutely bleeding ulcers.)

Christiansen discusses the prognosis of massive hemorrhage from ulcers. His material consisted of 289 cases of massive hemorrhage ascribed to gastric and duodenal ulcers. Purely medico-dietetic treatment was given. Twenty-five or 7.9 per cent died, the mortality for women being 10.3 per cent and for men 7.1 per cent.

having a recurrence, 59 per cent. Of the 289 patients, 203 or 70.3 per cent were in the first group, the remaining 29.3 per cent had previously had one or more massive hemorrhages. Ewald's test meal showed 70 per cent with hypersecretion and hyperacidity. In 58.6 per cent of both groups the mortality rises considerably after forty, while recurrence after surgery does not seem to affect the prognosis. The prognosis seems to be better in cases in which the hemorrhage is the first and only symptom of ulcer than in those in which there have been symptoms of ulcer.

Jordan and Kiefer discuss obstruction, hemorrhage and intolerance to alkalies as complications of peptic ulcer. They found that obstruction of all degrees was relieved in 89 per cent of seventy nine cases by medical management. It recurred later in 13 per cent. This suggested to them that the obstructing lesion is not a distinctive type of ulcer but that obstruction may be a complication in one attack and hemorrhage

or distress without gastric retention may occur in another. They believe that gastric retention of more than ten per cent as shown by a barium meal, has an unfavorable influence on the incidence of further recurrence of the disease. Recurrent hemorrhage is evidence of a more serious type of ulcer, in that there is a greater tendency in these patients to have a recurrence of symptoms. In the authors' experience there is a marked correlation between the degree of intolerance of patients to alkalies and the activity of the ulcer. Severe alkalosis may indicate a particularly severe lesion and a marked disturbance in gastric secretion as well as renal disease.

Hjort, E. Necropsy findings in fatal hemorrhages from gastric and duodenal ulcers. *Norsk. mag. f. lægevidensk.* 95: 542 (May) 1934.

Christiansen, T. Prognosis in massive hemorrhage from ulcers. *Hospitaltid.* 77: 1223 (Sept.) 1934.

Jordan, S. M. and Kiefer, E. D. Complications of peptic ulcer. *J. A. M. A.* 102: 2604 (Dec.) 1934.

(To be Continued)

RESULTS OF PNEUMOTHORAX

(Continued from page 728)

GENERAL CONCLUSIONS

Effectiveness of collapse of the diseased areas is the greatest single factor in obtaining successful results whether immediate or more remote. It seems obvious that valuable time is often lost in continuing over a long period a poor pneumothorax when other and more promising measures are available, or when the patient is obviously deriving no benefit from the procedure.

The data furnished no substantial support for the common impression that patients under twenty years of age respond poorly to collapse therapy. In fact, measured by immediate results and effectiveness of collapse those under thirty five fare better than those over that age. Wider use of pneumothorax in the group under twenty seems indicated.

The later results, in general assessed one to fifteen years after termination of pneumothorax treatment, appear distinctly gratifying. Although a considerable number of patients could not be traced, over 70 per cent of those followed were still living and of these three-quarters were able to work. Thus, with due consideration of its very considerable limitations, artificial pneumothorax appears to be undeniably one of our most valuable therapeutic measures in the treatment of pulmonary tuberculosis. We may further add that from this study its discontinuance seems warranted in many cases after a reasonably adequate period of effective treatment, which cannot be too dogmatically predicted.

A Survey of Artificial Pneumothorax in Representative American Tuberculosis Sanatoria 1915-1930

Peters Pope Morris Packard and Miller *Am. Rev. Tuberc.*, Jan., 1935

—*Tuberculosis Abstracts: A Review for Physicians issued monthly by the National Tuberculosis Association April 1935*

HARVARD MEDICAL SCHOOL AWARDS

The Harvard Medical School has awarded the following fellowships and scholarships for the academic year 1935-36

George Cheyne Shattuck memorial fellowship Theodore B. Bayles New Brunswick, N. J.

Charles Elliot Ware memorial fellowship Seymour M. Farber Buffalo, N. Y.

John Ware memorial fellowship Hebbel E. Hoff Lindsborg, Kans.

James Jackson Cabot fellowship William H. Sweet, Centralia, Wash.

DeLamar Student Research fellowships Milton Landowne Brooklyn George M. Pike Brookline Richard L. Riley Plainfield, N. J. Emmanuel B. Schoenbach New York.

William O. Moseley, Jr. travelling fellowships Austin M. Bruce Jamaica Plain Donald W. MacCallum Boston Lester S. King Brookline.

Edward Hickling Bradford fellowship Henry G. Schwartz, Boston.

John White Browne fellowships Howard C. Coggeshall Jacob Fine, Boston.

Jeffrey Richardson fellowship Clifford C. Francis Boston.

Dr. William Hunter Workman fellowship Theodore H. Ingalls New Hartford, N. Y.

Bates scholarship Elliott S. Hurwitz, Brookline Stoughton scholarships Albert S. Murphy Dorchester Olaf H. Pearson Dorchester

CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.

CASE 21161

PRESENTATION OF CASE

Approximately one year before entry the patient, a fifty-eight year old Canadian widow, had an attack of lower abdominal cramps which lasted about two hours and which was not relieved by hypodermics administered by her physician. There was no vomiting or change in bowel habits, although she did pass much gas by rectum. A similar attack occurred six weeks before entry and lasted a whole night. The pain was generalized in the lower abdomen and did not radiate. She felt perfectly well the following morning. Since then there had been no further pain, diarrhea or constipation. There was no blood in the stools. Her appetite remained good and there was no loss in weight although a year before entry she lost twelve pounds over a period of six months. Upon further questioning she stated that she had had mild abdominal cramps for about six years.

Her father died of jaundice. One sister died of influenza. Three years before entry she was exposed to tuberculosis through a daughter who died of tuberculosis after living two weeks at home with her parents during the height of the disease.

She had been married thirty years. Her husband died five years ago, following a gall stone operation. Two children were living and well. She had had three miscarriages.

She came to this country at the age of five and had lived in Massachusetts since. She had rheumatic fever without complications at the age of three. She was seen in the Out-Patient Department eighteen years ago with typical secondary syphilitic skin lesions and was followed for six years receiving antiluetic treatment. At the end of that period her Hinton test was negative although her spinal fluid showed increased albumin and globulin with a gold curve of 3322200000. She was not seen again until three weeks before entry and was then advised admission to the house.

Physical examination showed a small, thin, middle-aged woman in no acute distress. The heart and lungs were negative. In the right lower quadrant there was a boggy, slightly tender mass about the size of an index finger. The liver was felt two fingerbreadths below the costal margin on deep inspiration.

The temperature was 98.4°, the pulse 90. The respirations were 22.

The urine was negative. The blood showed a red cell count of 3,900,000, with a hemoglobin of 80 per cent, and a white cell count of 8,150, 56 per cent polymorphonuclears, 39 lymphocytes and 5 large mononuclears.

A barium enema performed in the Out-Patient Department showed a distended large bowel and cecum. The barium passed rapidly through the ileocecal valve. The entire cecum and part of the ascending colon were markedly narrowed and irregular in outline. The rugae in this area appeared to be destroyed. There was no involvement of the ileum. There was no spasm of the cecum or ascending colon. On palpation the involved area of the bowel appeared to be indurated but no definite mass could be felt. Examination of the stomach and duodenum was negative. Twenty-four hours later the gastrointestinal series showed that there was considerable barium still present in the small bowel although some had passed as far as the transverse colon. A small amount of barium that was still present in the cecum showed that there was apparently no irritability in this region. Examination of the chest showed dullness and contraction at both apices.

On the fifth day operation was performed.

DIFFERENTIAL DIAGNOSIS

DR. EDWARD L. YOUNG, JR. "Three years before entry she was exposed to tuberculosis. I am always 'leery' about putting too much weight on exposure to tuberculosis. We know that there can be a great deal of exposure without transference of the disease and I do not think we know how much importance to put on a statement like that."

"In the right lower quadrant there was a boggy, slightly tender mass about the size of an index finger." I will defy anybody to tell the difference always between cecum impacted with fecal material and a tumor of the bowel or of some other organic thing, especially with this description. Also, a thin woman may be the ptotic type and she may normally have a liver below the costal margin. It does not say abnormal in consistency and I think that also does not carry us very far.

Of course the thing we have to depend on for diagnosis, because the story does not carry us any distance, is x-ray, because at her age with a story of cramps we think first of something in the large bowel. I assume the next statement, "The entire cecum and part of the ascending colon were markedly narrowed and irregular in outline," came from the house x-ray a year later because it is opposite to the first sentence. Unless I am contradicted I assume these are two different x-rays. On the other hand a year before they had felt something in the right

lower quadrant, so I think my statement that it may have been fecal material in the cecum is probably true.

We are given then pretty definite pathology in the first part of the large bowel. The question is as to the diagnosis. Of course it is always worthwhile to consider the diseases somewhat in the order of their likelihood and carcinoma is, of course, the lesion most often found in the cecum, next, the hyperplastic, infiltrative type of tuberculosis, and then there are rarer conditions, actinomycosis, the non-specific types of perityphlitis with infiltration of the wall and pericecal tissue. What have we got to say for these diagnoses? She is in the cancer age which simply means it is a little more likely at fifty eight than it would be at twenty eight. It is not a localized process. The x ray shows that this process extends throughout the cecum and part of the ascending colon, with it are an absence of rugae and a stiffening of the wall. That is less characteristic of carcinoma than it is of what the radiologists tell us goes with tuberculosis.

In favor of tuberculosis of course is the exposure which as I have said I think means comparatively little. I should like to have the medical consultant or the x ray man who noted the dullness and contraction at both apices tell me a little more, whether he thinks that is important in suggesting tuberculosis of the lung, because we know that tuberculosis of the bowel is generally secondary to tuberculosis of the lung. There have been cases of course where tuberculosis comes into the bowel from the involvement of the lymphatics in the mesentery goes through into the lymphatics and because of activity ulcerates back into the bowel—either the ulcerative type, which is generally at the end of a tuberculous process, or a hyperplastic type, generally secondary to pulmonary tuberculosis. In other words if that process in the lungs was thought to be very suspicious it would back up the diagnosis of tuberculosis more.

I think I would throw out actinomycosis which is a very rare disease. It is a disease which tends not only to infiltrate but to form sinuses, and this has gone for some time with out any evidence of that sort of thing.

Is there anything else we ought to consider? Having worked with Dr Maurice Richardson and having had drilled into me that always in the right lower quadrant you have to mention appendicitis, I wonder if that is possible. I can remember one case of a tumor of the cecum where every diagnosis was made but that and where it turned out to be an old appendix abscess. It seems however, that this is a little more extensive without any of the acute attacks that should go with it. I think it is one of the cases where the precise diagnosis is of less interest than a working diagnosis that will carry us

up to the point of treatment. I think there is a condition present which justifies surgery regardless of whether it is carcinoma or tuberculosis, and that the operation should aim toward a removal of the disease. The hyperplastic type, the infiltrative type of tuberculosis of the cecum is cured by resection. Of course there is the old surgical fear of getting non healing tuberculous fistulae. I believe that a clean resection of a tuberculous disease of the ileocecal region will lead to as good a percentage of clean healing and cure as it will in carcinoma. If there is any doubt I think radical surgery should be done. I remember one case last year when I was on the service that had had an ileocolostomy for tuberculosis. The patient's symptoms of distress and pain did not disappear and he came in for resection I was not able to differentiate any more than the previous surgeon but the pathologist was and told us it was carcinoma. So that one cannot always tell. However I should think it was fair to put tuberculosis as the first diagnosis.

Are there any x rays?

X RAY INTERPRETATION

DR GEORGE W HOLMES. I can add little to what the examiner has said in his note. He said that the barium enema distended the large bowel and cecum and passed through the ileocecal valve rapidly. I do not think he meant that the cecum was actually enlarged but the barium distended it to its maximum capacity. This is an excellent picture of the cecum and ileum. Here is the hepatic flexure, it is much shortened and the involved portion of the bowel is well outlined.

The chest has the appearance of an old inactive tuberculosis. This line may be an azygos lobe. I cannot find the azygos vein. The conclusions reported are as follows: "The appearance is consistent with ileocecal tuberculosis. Some of the features are unusual, i.e., the lack of spasm, the lack of involvement of the ileum and partial obstruction at the ileocecal valve. We have, however, seen two similar cases of ileocecal tuberculosis in people of this age recently. The other possibility is scirrhus carcinoma."

DIFFERENTIAL DIAGNOSIS CONTINUED

DR YOUNG. I should put tuberculosis first on the story and the general picture, with a carcinoma second and certainly not to be ruled out. I should think a right colectomy was the operation to be aimed at.

CLINICAL DISCUSSION

DR BETH VINCENT. The abdomen was opened through a right paramedian incision. There were numerous adhesions resulting from the previous operation. When these were cleared a

boggy tumor was revealed occupying, I should say, the ascending colon. The large tumor suggested an inflammatory rather than a malignant lesion. A portion of the terminal ileum, the right colon and some of the transverse colon were resected and continuity reestablished by an ileocolostomy.

DR TRACY B MALLORY: What was your opinion preoperatively, Dr Vincent?

DR VINCENT: We thought it was tuberculosis of the colon.

CLINICAL DIAGNOSIS (PREOPERATIVE)

Tuberculosis of the colon

DR EDWARD L YOUNG'S DIAGNOSIS

Tuberculosis of the colon

PATHOLOGIC DIAGNOSIS

Tuberculosis of the cecum

PATHOLOGIC DISCUSSION

DR MALLORY: The specimen which was removed consisted essentially of the cecum and showed no ulceration whatever but a velvety thickening of the mucosa with a loss of its normal markings. Frozen sections showed typical tubercles and the diagnosis was confirmed by the later examination. The picture fits the so-called hyperplastic type of tuberculosis with no ulceration and in fact practically no necrosis or caseation.

Have you anything to add, Dr Kranes?

DR ALFRED KRANES: I saw the patient on the surgical service and like Dr Young I thought she had cecal tuberculosis for very much the same reasons. Although in the history it stated that she had symptoms for only a year it was later revealed that she had had cramps for a year but some of the symptoms for six years. The fact that it was such a large mass by x-ray, without palpable tumor or cachexia or anemia, also the fact that she had these little inflammatory lesions on her tongue which are seen in infiltrative disease of the bowel, and her general state of well-being, made me think it was probably not carcinoma.

DR MALLORY: I am inclined to take issue with Dr Young on the significance of the history of exposure to tuberculosis. It seems to me that the work of Opie and his associates in the past four or five years, particularly the study of tuberculosis in marital couples, is very convincing evidence of the development of active tuberculosis under conditions of exposure even in adult life. The proportion of cases that developed clinical tuberculosis was slight, but the proportion in whom foci demonstrable by x-ray appeared was very high. The work was very carefully controlled by repeated examinations and its validity can hardly be questioned.

DR A W ALLEN: I am interested in the

fact that with all this story about positive Wassermanns eighteen years before, the question of this being a luetic lesion was not even mentioned by anyone. I suppose that lues can never produce a picture of that sort in the large bowel.

DR MALLORY: I would not want to say that it could not, but from the practical point of view lues of the gastrointestinal tract is certainly so very rarely seen that one seldom has to consider it very seriously.

DR ALLEN: I should think it would be a long bet that it could be lues, to be sure, but it seems that it ought to be included in the possibilities if such a picture can be produced by lues.

DR YOUNG: I considered that in going over the history but a few years ago I asked a number of people if they had seen any case of syphilitic involvement of the large bowel including what we used to be told were syphilitic strictures of the rectum and I have not seen anyone who thought he had seen a case that was possibly of syphilitic involvement. Consequently, I threw it out and did not even mention it.

CASE 21162

PRESENTATION OF CASE

A thirty-six year old Jewish housewife entered complaining of diarrhea and epigastric pain of three months' duration.

Three months before entry she suddenly developed diarrhea consisting of about six movements a day. The movements were abundant and watery but were not black or bloody. There was no tenesmus. This diarrhea continued until admission. At about the same time she began to have cramp-like epigastric pain which was not related to meals. During the attacks of pain she felt hungry and after eating a little would feel quite full. The food would stick in her throat and she was able to eat only a small amount followed by water. This condition grew steadily worse and at the time of admission was fairly marked. Occasionally she had nausea but rarely vomited. One month before entry she noticed a new sort of pain which was located in the lower abdomen, more marked on the left. This pain was constant, dull and fairly widespread. It was intensified when she lay on her left side and was somewhat relieved by heat. It was often severe enough to keep her awake at night. Two weeks before entry she developed clenching night sweats. She had noticed a mass in her lower abdomen during the past month. There were no urinary symptoms. She believed that she had lost about twenty-five pounds in weight during this illness.

The family and marital histories are non-contributory.

There was no history of cancer, tuberculosis

or diabetes. She had four children, all living and well.

She was born in Russia but had lived in Massachusetts during the past twenty five years. Her past history is irrelevant.

Physical examination showed a very cachectic woman complaining of considerable abdominal pain. The skin was pale and dry. The lungs were clear. The heart was negative. The blood pressure was 110/76. The whole lower half of the abdomen was markedly rounded dull to percussion and tender, especially around a hard resistant, unmovable mass, measuring approximately 15 centimeters in diameter. The skin over this mass was stretched but not fixed. There was spasm in both flanks. The liver and spleen were not felt. On vaginal examination there was a tumor about 7 centimeters in diameter in the posterior cul-de-sac, apparently not related to the abdominal mass.

The temperature was 101°, the pulse 125. The respirations were 24.

On examination the urine showed a slight trace of albumin and an occasional white blood cell. The blood showed a red cell count of 4,550,000, with a hemoglobin of 80 per cent. The white cell count was 18,050. 90 per cent polymorphonuclears. A Hinton test was negative.

A flat abdominal plate showed the kidney outlines normal in size, shape and position. There were no shadows suggesting stones.

On the day following admission a pelvic abscess was drained through the abdominal wall above the pubis. Two drains were placed down into the bottom of the abscess cavity. The peritoneal cavity was not entered. A culture from the abscess showed bacillus coli. On the fourth day her temperature went down to normal and remained between 98° and 100° for the next few weeks. She continued to complain of nausea and vague lower abdominal pain.

A barium enema given about three weeks after admission showed an extrinsic defect in the rectum. The barium passed freely around to the cecum, the tip of which was slightly spastic. There was a narrowing of the first two inches of the terminal ileum. After emptying a small pear-shaped shadow was seen just beneath the contour of the cecum and this was associated with a worm-like segmented shadow in the region of the appendix. A lateral view showed linear areas of calcification of the soft tissue of the right lateral abdominal wall. A film taken with the patient standing failed to show a definite fluid wave in the pear-shaped shadow beneath the cecum.

Two days later an exploratory laparotomy was performed.

- DIFFERENTIAL DIAGNOSIS

Dr. ROBERT R. LINTON. The patient was apparently perfectly well until three months before entry which to me means that she suffered

from an acute illness rather than a chronic condition.

I should like to know a little more about these attacks. It says that she developed diarrhea, and about the same time she developed cramp-like abdominal pains which were not related to meals. I would like to know whether the pain started first or the diarrhea. Then one month before entry she noticed a new sort of pain low in the lower abdomen. I would also like to know whether the epigastric pain which she first complained of shifted shortly after the illness began. That is not stated here either. I imagine that the pain she developed in the left side of the lower abdomen a month after her illness was related to the mass which she also discovered about that time in the lower abdomen.

Two weeks before entry she developed drenching night sweats. That might suggest tuberculosis, but it is also consistent with sepsis.

She had two masses, one in the abdomen and one in the posterior cul-de-sac. It is possible that the latter might have been associated with the pelvic organs. However, no mention is made of this fact and I presume it was thought not to be. I am thinking there of course of some form of cancer involving the adnexa or an old pelvic inflammation which was probably on a gonorrheal basis. No mention is made of her catamenial history which might help us rule it out. However, I think I will rule it out without that being mentioned.

There is a definite increase in the white blood cell count and a definite preponderance of polymorphonuclears which I think is definitely in favor of a septic process. The urinary examination is negative.

X RAY INTERPRETATION

Dr. GEORGE W. HOLMES. I can see the kidney outline quite well, particularly the one on the right. That shadow which looks like the gall bladder is the overlapping shadow of the kidney and liver. The liver shadow seems a little large. There is some gas here which may be in the small bowel but I would not be impressed at all by this amount of gas. In the pelvis there is some dullness even a bladder full of urine would not give as much dullness as this. There is a mass in here on the right side which is certainly abnormal. I suppose a rectum full of feces could look a little like that. It may represent a tumor.

DIFFERENTIAL DIAGNOSIS CONTINUED

Dr. LINTON. I do not think these x rays help in the diagnosis at all.

I should like to return to the question of diarrhea. That apparently was the patient's presenting symptom and there are several reasons possible for the diarrhea. In the first place she might have an ulcerative colitis giving

ing her diarrhea I rather doubt that, as there was no blood in the bowel movements, at least none was stated. Another possibility is that she might have some infiltrative mass involving her large bowel which is causing her diarrhea, such as carcinoma. We do see it in carcinoma of the colon. The other thing one must seriously consider is the possibility of an infection which is localized around the cecum. It might be tuberculosis, but I do not believe it is. The other thing that I would consider would be involvement of the appendix. It is not common to get diarrhea with acute appendicitis, but it is possible. The continuous diarrhea may well have been due to that or to the pelvic abscess. Usually a pelvic abscess involving the terminal colon and sigmoid will produce a diarrhea.

On the day following admission a pelvic abscess was drained through the abdominal wall above the pubis. I think the one thing we learn from this operation is that she did have pelvic abscess and that it contained B. coli. I think most likely that the origin of the abscess was associated with the gastrointestinal tract. I doubt that it was tuberculosis. It might have been diverticulitis which had ruptured. I do not think so. She is rather young for that and there is no story favoring the diagnosis of ruptured appendix with a pelvic abscess associated with it. Now perhaps Dr. Holmes would like to show the next x-rays.

X-RAY INTERPRETATION CONTINUED

DR. HOLMES: This x-ray note is not so clear as the previous one. Here is the film with the colon filled and whatever was present in this region did not cause sufficient obstruction to prevent the flow of the barium through to the cecum. The thing that interests me most here is this shadow which I take to be the terminal ileum. It is definitely narrow and mottled. The cecum is apparently displaced from the usual position in the pelvis. It is higher than normal. After evacuation this narrow and somewhat irregular terminal ileum was still seen and the cecum remained high and irregular. This is the worm-shaped shadow which is described in the note. I presume it is a partially filled appendix. I doubt if it could be anything else. There is surprisingly little abnormality of the cecum.

This is the lateral view of the pelvis. These are presumably the shadows thought to be in the soft tissues. I certainly cannot interpret them and do not know what they mean. They might very well be bowel. So then we have rather definite evidence of a lesion in the terminal ileum with an appendix that is not entirely obliterated.

FURTHER DIFFERENTIAL DIAGNOSIS

DR. LINTON: I think we can say that narrows our pathology very definitely to the ter-

минаl ileum and the cecum. I think the possibilities are first, malignant disease—which from the age of the patient and involvement of the ileum would seem unlikely—secondly, tuberculosis of the cecum and terminal ileum, and the third possibility, as I mentioned before, is appendicitis with perforation, which I think is the most likely. I can explain the pelvic abscess easiest that way. The pressure defect on the sigmoid I think is the result of her old pelvic abscess. So I favor the diagnosis of appendicitis and pelvic abscess.

CLINICAL DISCUSSION

DR. A. W. ALLEN: The question which Dr. Linton brings up about the history as to whether or not pain preceded the diarrhea was one upon which we were not able to obtain any information. This woman spoke very poor English, was of a low mental caliber, and even through her relatives we were not able to ascertain whether she had an attack of pain prior to the diarrhea, but we assumed that she did. If she did have an attack of acute appendicitis it was mild enough so that it had not caused her much trouble. The diarrhea evidently was secondary to the pelvic abscess. We considered at the time prior to operation the possibility of an amebic infection and we considered some of the other possibilities which Dr. Linton has mentioned, but we did not consider the correct diagnosis. It is only fair to say that we hoped that we might be able to empty the abscess through the vagina or through the rectum. On examination under the anesthetic, however, it was obvious that that would not be safe, so an incision was made above the pubis and the abscess drained extraperitoneally, or at least not entering the general abdominal cavity. We felt quite content and happy to drain the abscess and let her get over the acute illness and had planned to let her go home and come back later to have her appendix out. She did not respond particularly well except that her temperature came down. Her mass decreased materially in size, but she continued to have her pain and she continued to have diarrhea. Even then we were not acute enough to suspect the true lesion. We considered various other things but I think never did consider the correct diagnosis. It seems rather strange in retrospect, as it usually does. At any rate, because her symptoms persisted, Dr. Herbert Adams, who was resident at that time, went in to remove the appendix and found a normal appendix. I will stop there for now.

DR. EDWARD L. YOUNG: See if anyone knows the answer.

DR. TRACY B. MALLORY: It is wide open for discussion.

A PHYSICIAN: Dr. Holmes, did you mention anything about the pear-shaped shadow?

Dr. HOLMES It is described but it is difficult for me to be certain about it.

Dr. YOUNG I should like to ask if the mass that was separate from the abscess cavity still persisted after the abscess was drained. What did the pelvis show after drainage of the abscess?

Dr. ALLEN First, she was very exquisitely tender so that it was not possible to outline the two masses as accurately as they appear in the history. I never could make it out accurately. The whole pelvis was considerably obscured even after drainage of the abscess so that we could make out nothing more than what you might get in an inflammatory process that had been drained but no discrete tumor like projections.

Dr. YOUNG She must have a lesion in the gastrointestinal tract. The only thing I can think of is ileitis, the new disease. The x ray seems to me to back up that diagnosis.

Dr. HOLMES Did the x ray people make a diagnosis?

Dr. MALLORY I do not think so.

I guess you might go ahead Dr. Allen.

Dr. ALLEN It is interesting that neither the x ray department nor the surgical department laid any stress on this narrow terminal ileum which is the keynote to the whole picture. This woman had been very thoroughly studied in one of the other hospitals in the city and for some reason or other had become discouraged because she did not get better. They could not make a diagnosis so she went home and finally showed up here. We looked up her other records and found that they did not suspect this lesion. Dr. Adams found when he took the appendix out that she had a fairly typical lesion of non-specific granuloma involving the ileum but not involving the cecum at all, just as Dr. Young has suggested. She was very ill at that time and in very poor shape. Her nutrition had been very difficult to maintain and Dr. Adams very rightly planned a two-stage procedure dividing the bowel and bringing the ends out into the abdominal wall. She improved and gained weight after that so that a resection could be done at a third operation. She made an uneventful convalescence after the resection.

A PHYSICIAN Was there any distention of the small bowel at either exploration?

Dr. ALLEN I did not see any bowel when I drained the abscess. I carefully avoided that, but at the second operation Dr. Adams had an exposure that enabled him to see the entire lesion. The bowel of course was somewhat thickened but not much distended above this area. It is surprising how little of that ileum appears to be constricted in the x ray, in fact, it was a matter of several inches.

Dr. MALLORY It was 15 centimeters long.

A PHYSICIAN Where did the abscess come from?

Dr. MALLORY From a perforation of the ileum, undoubtedly.

Dr. YOUNG Is this not the first time we have had terminal ileitis go on to pelvic abscess formation?

Dr. ALLEN I cannot answer that right off. Have you not been working on that, Dr. Castleman?

Dr. BENJAMIN CASTLEMAN This is the first one that produced a pelvic abscess.

CLINICAL DIAGNOSIS (PREOPERATIVE)

Appendix abscess, recurrent.

Dr. ROBERT R. LINTON'S DIAGNOSIS

Perforated appendicitis with pelvic abscess

PATHOLOGIC DIAGNOSIS

Regional ileitis with perforation

PATHOLOGIC DISCUSSION

Dr. MALLORY The specimen in this case was very typical of so-called regional ileitis. The last 15 centimeters of the ileum was markedly thickened, its wall as thick as that of an ordinary rubber garden hose. On section, one finds the mucous membrane almost entirely replaced by granulation tissue and the muscular layer markedly thickened by a chronic inflammatory infiltration with a considerable amount of fibrosis. There are always foci to be found in this inflammatory infiltration which will show central abscess formation with many polymorphous nuclear leucocytes and then at the periphery a wall of large mononuclear epithelioid cells that very strongly suggest tuberculosis. Mixed with these cells, almost invariably, occasional large giant cells are found. As has been the experience nearly everywhere else before the surgeons' called our attention to this clinical disease, we have suspected cases of this type to be tuberculosis and have made numerous stains for tubercle bacilli. Material has been injected repeatedly into guinea pigs and other animals, always with negative results. The lymph nodes are almost invariably much enlarged. They were in this case. They showed an entirely non-specific acute inflammatory process, and so far as I know the giant cell foci are never found in them.

Dr. BETH VINCENT Do you think the abscess resulted from rupture directly from the lumen of the bowel or merely from rupture of the small abscesses in the wall?

Dr. CASTLEMAN Usually there is perforation through the bowel wall but the infection is usually walled off by the tissue around it. Very often sinus tracts and fistulas are formed between loops of bowel. Apparently this one followed the unusual course of working right down into the pelvis.

DR MALLORY The etiology of the disease is entirely unknown. This type of inflammatory reaction is by no means specific since it is very much like that seen in lymphogranuloma and also closely resembles a condition which Dr Wolbach described a few years ago as pseudotuberculosis. I do not think, from the histology, that one can consider it a very specific process.

DR HOLMES Does the history resemble that of sarcoid at all?

DR MALLORY No.

DR ALLEN We might mention the fact that we have had a considerable number of cases where the cecum and ascending colon as well as the terminal ileum have been involved. Also, Dr Ladd at the Children's Hospital has had at least one patient where the jejunum was the

site of the lesion. So I presume it might be anywhere in the gastrointestinal tract. There have been other cases recorded where the small bowel elsewhere than the ileum has been involved.

DR MALLORY As a final comment I would like to point out that this is still a newly recognized disease entity. As yet we know very little of its life history. Occasional, even repeated recurrences have been observed and we must still be guarded in our prognoses.

REFERENCES

- 1 Crohn, B. R., Ginzburg, L. and Oppenheimer, G. D. Regional ileitis: a pathological and clinical entity. J. A. M. A. 99: 1323 (Oct. 15) 1932.
- 2 Homans, J. and Hass, G. M. Regional ileitis: a clinical, not a pathological entity. New Eng. J. Med. 209: 1315 (Dec. 28) 1933.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

COMMITTEE ON PUBLICATIONS

R. L. LEE, M.D., Chairman HOMER CLARK, M.D.
R. D. OSOOND, M.D. R. M. SMITH, M.D.
F. H. LAHET, M.D.

EDITORIAL STAFF

REID HUNT, M.D. STEPHEN RUSHMORE, M.D.
JOHN P. SUTHERLAND, M.D. HANS ZIMMER, M.D.
GEORGE H. MINOT, M.D. BENJAMIN WHITE, PH.D.
FRANK H. LAHET, M.D. HENRY R. VINT, M.D.
SHIELDS WARREN, M.D. ROBERT N. VIT, M.D.
GEORGE L. TORRY, JR., M.D. ROBERT M. GREEN, M.D.
C. GUY LANE, M.D. CHARLES C. LUND, M.D.
WILLIAM A. ROOSES, M.D.

WALTER P. BOWERS, M.D. Managing Editor

ASSOCIATE EDITORS

GEORGE G. SMITH, M.D. WILLIAM B. BRUCE, M.D.
JOSEPH GARLAND, M.D.

THE NEW HAMPSHIRE MEDICAL SOCIETY

PUBLICATION COMMITTEE

CARLTON R. MERRILL, M.D. HERBERT H. AMESDEN, M.D.
WARREN H. BUTTERFIELD, M.D.

THE VERMONT STATE MEDICAL SOCIETY

PUBLICATION COMMITTEE

WILLIAM G. RUCKER, M.D. C. F. DALTON, M.D.
L. H. ROSS, M.D.

SUBSCRIPTION TERMS \$8.00 per year in advance postage paid
for the United States Canada \$8.00 per year \$12.00 per year
for all foreign countries being sent to the Postal Union.

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office at Fenway.

The Journal does not hold itself responsible for statements
made by any contributor.

Communications should be addressed to The New England
Journal of Medicine 8 Fenway Boston Mass.

ALLERGIC SKIN REACTIONS

THE optimism of the enthusiast for skin tests has never wholly counteracted the pessimism of the diagnostic nihilist who is skeptical of all skin tests. Thus there has been controversy about the value of positive skin tests as a diagnostic procedure. The multiplicity of terms which always develops in any new field has undoubtedly served to confuse the issue to a certain extent.

In any relatively new procedure adequate clinical experience must accumulate and sufficient time must elapse in order to arrive at the proper value of this procedure, whether economic, political or scientific. The contribution of Colmes which appears on page 725 of this issue on the subject of skin tests is helpful in evaluating them. In nearly 100 per cent of the seasonal hay fever cases positive skin reactions to causative pollens were found. On the other hand, in urticaria only 4 per cent were found to have positive skin reactions to agents which had been found clinically important. In the asthma group, only 40 per cent and in the per-

ennial vasomotor rhinitis group only 25 per cent of the cases had positive skin tests of diagnostic significance. These figures indicate that positive skin tests cannot be accepted as a sole basis for determining the offending factor in many allergic cases but that a very careful clinical history is necessary. Here again is evidence that a laboratory test should not displace entirely a detailed clinical consideration of the patient.

Coca* has already called attention to the fact that in the familial atopic eczema the scratch test or intracutaneous injection, using aqueous extracts, provides the most satisfactory results, whereas in contact dermatitis the patch test using the original raw material, possibly diluted, gives a more consistent value to the test. The latter test, for example, results negatively very frequently in the familial allergic cases.

It would seem that promiscuous skin testing should become a thing of the past. Proper selection of patient and of test should be made in order to gain the proper scientific data and not subject the patient to unnecessary tests and expense. At the same time thought should be given to the variation in tests from time to time. Their evaluation demands experience and common sense. Further studies will undoubtedly clarify the situation still further and stabilize the value of the tests in their proper diagnostic niche.

Coca Arthur F. Specific diagnosis and treatment of allergic diseases of the skin. J. A. M. A. 103 1278 (Oct. 27) 1934

The Massachusetts Medical Society

ANNUAL MEETING OF THE SECTION OF PEDIATRICS, JUNE 5, 1935

THE PRESENT STATUS OF COMMUNICABLE DISEASE CONTROL

AMONG the most rapid, as well as the most confusing advances that have been made in Pediatrics during recent years, has been the addition to our prophylactic and therapeutic armamentarium of a number of new biologic products. Pediatrics, perhaps of all the specialties, with the exception of public health and industrial medicine, is the one most concerned with the prevention of disease and with the communicable diseases, it is natural, therefore, that the physician practicing Pediatrics, whether as a specialty or as a part of his daily round, should be interested in these new biologic procedures.

The difficulty, however, comes in properly evaluating the advances that have been made, in separating the wheat from the chaff, in overcoming a human inertia toward adopting a new method or in tempering an enthusiasm, perhaps unwarranted, for the latest medical miracle. Convalescent serum and human whole blood have

long been recognized as effective agents in preventing measles or in serving, when injected at the proper time, to modify its course. Recently an extract of human placenta has been found to meet the same purpose. To what extent can this agent be relied upon to replace the older, less easily available substance?

The value of whooping cough vaccines has long been a subject of debate, Sauer has now produced a vaccine of high potency which is claimed to be a prophylactic agent of great reliability, producing a long time immunity to the disease. Has this vaccine proved sufficiently reliable to warrant its general adoption? Scarlet fever toxin, in conjunction with the Dick test, has been used for active immunization against scarlet fever, and experiments have been conducted with a new toxoid. What is the present status of these products, and will one or both of them prove to be an acceptable addition to our armamentarium? Toxin-antitoxin was long ago proved to be an effective agent in the prevention of diphtheria, and in recent years diphtheria toxoid has largely replaced it. Will toxoid be supplanted by the alum precipitate toxoid, given in one dose?

These problems are of such importance that it has seemed wise this year to devote the session of the Pediatric Section of the Annual Meeting to their discussion. At that time, new factors in the control of measles will be presented by Richard Cannon Elev, M.D., of the Boston Children's Hospital, pertussis prophylaxis by Francis C. McDonald, M.D., of the Boston Floating Hospital, the present status of immunization against scarlet fever by Gaylord W. Anderson, M.D., Director of the Division of Communicable Diseases of the State Department of Public Health, and the control of diphtheria by Elliot S. Robinson, M.D., Director of the State Antitoxin and Vaccine Laboratory. The symposium will be summarized by Dr. Richard M. Smith.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

BIDGOOD, CHARLES Y. B.S., M.D. University of Virginia Department of Medicine 1920 F.A.C.S. Assistant in Clinical Urology, Yale University School of Medicine. Urologist, Manchester, Torrington, Municipal and Meriden Hospitals. Assistant Urologist, Hartford Hospital. Consulting Urologist, Willmantic, New Britain, and Winsted Hospitals. Address 179 Allyn Street, Hartford, Connecticut. Associated with him is

ROBERTS, DOUGLAS J. M.D. University of Vermont College of Medicine 1916. Radiologist, Hartford, Municipal, Torrington, Manchester and Winsted Hospitals. Consulting Roentgen-

ologist, Meriden Hospital. Address 179 Allyn Street, Hartford, Connecticut. Their subject is "Non-Calculus Obstructions at the Ureteropelvic Junction." Page 705

IRVING, FREDERICK C. A.B., M.D. Harvard University Medical School 1910. F.A.C.S. William Lambert Richardson Professor of Obstetrics, Harvard University Medical School. Visiting Obstetrician, Boston Lying-In Hospital. His subject is "Braxton Hicks Version." Page 718. Address 221 Longwood Avenue, Boston, Massachusetts.

COLMES, ABRAHAM. M.D. Boston University School of Medicine 1915. Assistant Visiting Physician, Beth Israel Hospital. Assistant in Medicine, Massachusetts General Hospital. Instructor in Medicine, Tufts College Medical School. His subject is "A Clinical Evaluation of the Positive Skin Reaction in Asthma, Urticaria, Vasomotor Rhinitis and Seasonal Hay Fever." Page 725. Address 371 Commonwealth Avenue, Boston, Massachusetts.

COUES, WILLIAM PEARCE. M.D. Harvard University Medical School 1894. F.A.C.S. Former Instructor in Surgery, Tufts College Medical School. Former Surgeon to Out-Patients, Massachusetts General Hospital. Former Consulting Surgeon, Massachusetts Eye and Ear Infirmary. His subject is "Fracture of the Coracoid Process of the Scapula." Page 727. Address 12 Monmouth Court, Brookline, Massachusetts.

EMERY, E. S., JR. See This Week's Issue, page 694, issue of April 11, for record of author. His subject is "Progress in Gastro-Enterology for 1934." Page 729.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY*

THOMAS ALMY, M.D.,
Chairman,
140 Rock Street,
Fall River, Mass.

C. J. KICKHAM, M.D.,
Secretary,
524 Commonwealth Avenue,
Boston, Mass.

ABLATIO PLACENTAE AS A COMPLICATION OF PREGNANCY

Ablatio placentae may be defined as the partial or complete detachment of the normally implanted placenta before the completion of the second stage of labor. It was not until 1776 that Rigby established the difference between hemorrhage due to the premature separation of the placenta and that due to placenta previa. Clinically, hemorrhage with pain, in the last trimester of pregnancy, is associated with the

*A series of short selected articles by members of the Section will be published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the Section.

premature separation of the placenta, while hemorrhage without pain is connected with placenta previa. In the mild types of ablatio the condition may go unrecognized until the examination of the placenta after the third stage of labor. In the severe types, however, there exists an effusion of blood varying in extent in the myometrium and a disassociation of the individual muscle fibers. The process may involve the anterior or posterior uterine walls and, in some cases may extend to the broad ligaments and to the tubes and ovaries. The uterus has an ecchymotic mottled appearance which gives it the resemblance of an ovarian cyst with a twisted pedicle. The point of maximum involvement of the uterine wall is usually found at the site of placental insertion. To this disorder Couvelaire gave the name of uteroplacental apoplexy, a name which he later changed to uterine apoplexy. A uterus which is the seat of these changes has also been termed a "Couvelaire Uterus". Clinically, the uterus is enlarged, has a ligneous or woody consistency and does not retract. The fetal heart tones are usually faint or absent and the uterus is so tense that it is impossible to outline the fetal parts. The clinically recognized cases are said to occur once in 500 labors.

Holmes, who has made an extensive study of this subject, sums up the etiological factors under three heads—(1) Accidents, although these have not been found to play such an important rôle as the earlier writers thought. (2) Some types of inflammatory reactions, degenerative alterations of the serotina placenta and uterine wall. (3) A toxic origin, although probably not the toxin which causes eclampsia.

As far as the signs of ablatio are concerned the same author divides them as follows: (1) Signs referable to blood loss, acute anemia, dizziness, faintness, syncope. Escape of a pinkish discharge, blood serum. Escape of dark blood and blood clots. (2) Signs referable to shock. (3) Signs referable to the uterus, local pain and tenderness, uterine distention, diffuse and local changes in uterine consistency. Fetal signs, sudden violent fetal movements, then arrest of fetal life.

Premature separation of the placenta carries a high mortality, maternal and fetal. Figures collected by Holmes show a wide range of results. Thus Goodell (1870) had a gross maternal mortality of 50.9 per cent and fetal mortality of 94.4 per cent. Holmes' collection of cases showed a maternal mortality of 32.2 per cent and fetal mortality of 85.8 per cent, although in his own personal cases the maternal mortality was 13 per cent. Williams had three deaths in forty cases (7.5 per cent), Greenhill reported three deaths in eighty-two cases (3.6 per cent), while in the Rotunda Hospital service seven deaths occurred in ninety-eight patients (7.1 per cent). Prompt intervention under very favor-

able circumstances allowed Portes to save but 20 per cent of the infants while the maternal loss was 36 per cent. While marked improvement has been shown in the maternal results since the beginning of this century, the fetal mortality will always remain high as the infants usually die suddenly from asphyxia.

The method of delivery in ablatio placenta is largely influenced by the amount of dilatation of the cervix. Watchful expectancy can be considered only in the mildest cases, where the blood loss is slight. As a general principle the pregnancy should be terminated as soon as the diagnosis is made. The vaginal tampon which at one time was favored by the Rotunda group has been discarded in most clinics. The dilating bag has but little more value because of its uncertain effects especially in the early part of the last trimester of pregnancy. The wide rupture of the membranes, the labor being left to nature has some value in the mild cases. If delivery is accomplished by the natural passages, the uterus should be carefully packed as a precautionary measure and small doses of posterior pituitary extract, two to three minims, should be administered at intervals to keep the uterus well contracted. Large doses of this extract, because of its forceful action on the uterine muscle, are contraindicated. If, as not infrequently happens the patient has not started in labor, abdominal delivery offers her the best chance, as by this method it is always possible to control hemorrhage. Since even in severe cases of uterine apoplexy the lower uterine segment is usually found free of involvement, a fact emphasized by Phaneuf in a paper published in 1925, it seems logical that the incision in the uterus should be made in the lower segment rather than in the hemorrhagic corpus. Hysterectomy is reserved for those cases where the uterus fails to contract and where hemorrhage persists. In performing hysterectomy it is frequently necessary to remove the adnexa in order to ligate the ovarian vessels in the infundibulo-pelvic ligaments close to the pelvic brim rather than in the ecchymotic infiltrated and distended broad ligaments close to the uterus, as the latter procedure predisposes the patient to secondary hemorrhage. Blood transfusion before and after operation will prove to be a valuable measure in the treatment of these tragic cases, and will save a number of women who might otherwise be doomed.

SECOND ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the Committee for the week beginning April 21

Berkshire

Thursday April 25 at 4:30 P.M., at the
St. Luke's Hospital, Pittsfield Subject

The Common Neuroses and Their Treatment
in Private Practice The Psychoses—
Early Diagnosis Albert C England, M D,
George S Reynolds, M D, Chairmen

Bristol North (Attleboro Section)

Tuesday, April 23, at 4 00 P M, at the Sturdy
Memorial Hospital, Attleboro Subject Cardiovascular Disease (Third Session) William M Stobbs, M D, Chairman

Bristol South (New Bedford Section)

Friday, April 26, at 4 00 P M, at the St Luke's
Hospital, New Bedford Subject Cardiovascular Disease (Second Session) Harold E Perry, M D, Chairman

Franklin

Wednesday, April 24, at 8 00 P M, at the
Franklin County Public Hospital, Greenfield Subject Obstetrics and Gynecology (Third Session) Halbert G Stetson, M D, Chairman

Hampshire

Wednesday April 24, at 4 15 P M, in the
Nurses Home of the Cooley Dickinson Hospital, Northampton Subject Surgery (Second Session) Robert B Brigham, M D, Chairman

Middlesex North

Friday April 26, at 7 00 P M, at the St John's
Hospital, Lowell Subject Amebiasis and Parasite Diseases Common in New England Frederick P Murphy, M D, Chairman

Norfolk (Faulkner Hospital Section)

Monday, April 22, at 4 00 P M, at the Faulkner
Hospital, Jamaica Plain Subject The Common Neuroses, etc Hugo B C Riemer, M D, Chairman

Norfolk (Norwood Section)

Friday, April 26, at 8 30 P M, at the Norwood
Hospital, Norwood Subject The Common Neuroses, etc Hugo B C Riemer, M D, Chairman

Worcester (Milford Section)

Thursday, April 25, at 8 00 P M, at the Milford Hospital, Milford Subject Obstetrics and Gynecology (First Session) Joseph I Ashkins, M D, Sub Chairman.

Worcester (Worcester Section)

Wednesday April 24, at 7 30 P M, in the
Nurses Home of the Worcester City Hospital, Worcester Subject Cardiovascular Disease (First Session) Erwin C Miller, M D, Chairman

Worcester North (Fitchburg Section)

Friday, April 26, at 4 30 P M, at the Burbank
Hospital, Fitchburg Subject Cardiovascular Disease (Second Session) Edward A Adams, M D Chairman

MASSACHUSETTS LEGISLATIVE NOTE

House 758. Petition of Curtis M Hilliard for investigation by a special commission (Commissioners of Public Health and Mental Diseases and others) of public health laws and practices within the Commonwealth

Discharged from House Ways and Means

April 11 Ordered to third reading in House

MISCELLANY

REORGANIZATION OF THE CARNEY HOSPITAL SURGICAL SERVICE

At a recent meeting of the Governing Board of the Carney Hospital, the following reorganization of the Surgical Service was approved: Dr Frederick B Lund, who for the past nine years has been Surgeon in Chief, was appointed Consulting Surgeon Dr A. McK Fraser was appointed Surgeon in Chief of the First Surgical Service, and Dr Howard M Clute, Surgeon in Chief of the Second Surgical Service

DR ARTHUR N BALL

The Board of Trustees of the Northampton State Hospital has selected Dr Arthur N Ball as Superintendent of that institution, to succeed Dr Edward W Whitney, deceased, and the appointment has been approved by the Department of Mental Diseases, as announced by Dr Winfred Overholser, Commissioner Dr Ball will probably take up his new duties about May 10

Dr Ball was born in Peru, Massachusetts, in 1883 He received the degree of M D from the University of Pennsylvania in 1911, following which he spent one year as House Officer at the Paterson, New Jersey, General Hospital In October, 1912, he was appointed Assistant Physician on the staff of the Northampton State Hospital and in March, 1918, was given a leave of absence to enter the Medical Corps of the United States Army, where he remained until July, 1919, returning to the Northampton State Hospital as Senior Physician In November, 1921, Dr Ball was transferred to the Gardner State Colony as Assistant Superintendent, where he remained until October, 1926, when he was transferred to the Department of Mental Diseases as Assistant to the Commissioner On October 29, 1928, he was appointed Chief Executive Officer of the Boston Psychopathic Hospital From November, 1931 to the present time he has been an Assistant to the Commissioner of Mental Diseases, one and one half years of which period he had charge of the Division for the Examination of Prisoners

Dr Ball married Miss Mae Turner of Cummington, Mass, and has one son, Myron Douglas He is a member of the American Psychiatric Association, Massachusetts Psychiatric Society, American Medical Association, the New England Society of Psychiatry, and the Massachusetts Medical Society

In commenting on Dr Ball's appointment, His Excellency, Governor Curley said

"The selection of Dr Arthur N Ball by the trustees to be superintendent of the Northampton State Hospital is entirely in line with what I believe to be the only sensible policy in such highly specialized institutions as those within the jurisdiction of the State Department of Mental Diseases.

"The care and treatment of the mentally ill is an exact science, which calls for highly trained and temperamentally equipped department and divisional officials. The work is difficult and the remuneration is seldom large and I believe that those men who are giving their lives and talents to this important duty of our State government should be promoted from the ranks when opportunity for advancement presents itself. It is the constant adherence to this policy which has preserved the morale for which our Massachusetts Department of Mental Diseases is known the country over

CORRESPONDENCE

DOCTORS AND THE LIEN BILL

March 28 1935

Editor *New England Journal of Medicine*

On Monday March 18 there was an editorial in the *Evening American* which started off with the caption "Extending a Racket Beacon Hill Idea," which was a blast from some so-called law maker at the State House with a mean broadside shot at physicians

I felt a little hurt and wrote a letter to the editor requesting him to say something on the other side of the question, and on Wednesday March 27 in the *American* on the editorial page he did so I am enclosing both articles

Martin Hays one of the leaders of the House a lawyer who seemed to favor the Lien bill some time ago especially at the hearing has become rather nasty insulting the entire medical profession. On March 27 in an article in the *Boston Morning Globe* he said in part, "But," Mr Hays went on "now that the House is considering this matter I am inclined to think we should kill the whole thing. Why should the doctors and hospitals be permitted to get their talons on the money of the people who are insured? There are more doctors chiselling on such matters than any other group I come in contact with. I know doctors who are acting as attorneys so that they may fatten their fees."

Dr Miles, who heard him at the time he spoke said he bitterly harassed the medical profession for no particular reason except, perhaps, that he was favorably inclined to lobbyists of lawyers who are on the other side.

I wrote Representative Hays a letter I do not know whether it will make any difference in his opinion at this time but I wrote to him diplomatically with no apparent intention to antagonize him in

any way I am enclosing a copy I hope you will find the enclosures of interest.

I remain

Respectfully yours

HENRY M LANDESMAN MD
463 Commonwealth Avenue
Boston Mass

March 27 1935

Hon Martin Hays
State House,
Boston Mass.

My dear Mr Hays

I was terribly disappointed in the quotation supposed to have been made by you in reference to Senate Bill 52. I believe there must be some misunderstanding. You recall that at the hearing of the bills dealing with liens for physicians hospitals and nurses, the hearing room was jammed with physicians and representatives from hospitals all over the State.

It is true that you have been a very busy man and have had to listen to a great deal from proponents of other bills, but at the same time some protection must be given to physicians and hospitals for services rendered when settlements are made. There is no comparison here of physicians with butchers and grocers. Physicians are serving the poor gratis at hospitals and at homes, hospital institutions are open to the poor we are doing something for the public constantly and when settlements are made in cases where services were rendered, why shouldn't the hospitals and physicians be paid? The lawyers always get their checks, they are always paid, what objections have lawyers to the payment of physicians and hospitals? Is it not true that a physician is an important factor in an accident does not the physician send reports to the lawyers whose clients are injured? You know that a physician trudges to the home of a patient, takes care of him and treats him gets him back to health and work, and yet when settlements are made we do not hear of these for a long time and would not perhaps if we did not happen to look them up. What objections can there be to physicians being paid? When a great deal of work is done for a patient with broken limbs or a fractured skull or brain injury and settlements are made that are rather small do not the physicians always appreciate this fact and are they not willing to take a loss in the amount of their bill? In other words, my friend give us a break

I have investigated this matter as you know and things are very deplorable. Let me cite you what occurred in my experience lately

Case 1. A patient of mine was in an automobile accident, was badly injured so much so that she required over four weeks in the hospital with weight attachments to her lower limbs. A consultation was also held. The case was settled for \$400 the attorney gave the patient \$165.00 and re-

1. The 'Lien Bill' (to provide security to hospitals and physicians in certain personal injury cases), State Senator Dr Charles G Miles, Chairman of the Committee on Education Discussion opened by Mr Frank Scannell of the Lumberman's Insurance Company
2. Bohler's Method of Treating Fractures of the Os Calcis, illustrated by moving pictures Dr William Lanigan, Junior Visiting Orthopedic Surgeon to the Cambridge City Hospital Discussion opened by Dr Joseph H Shortell.

FREDERICK W O'BRIEN, M D, *President*
WM PEARCE COUES, M.D., *Secretary*

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, APRIL 22, 1935

Tuesday, April 23—

- 12 30-4 P.M. Ward Visit, Massachusetts Eye and Ear Infirmary
- 14-5 P.M. Seminar, Pediatric Laboratory, Massachusetts General Hospital.
- *5 P.M. Gunnar Nystrom, Professor of Surgery University of Upsala, Sweden, will discuss Swedish Experiences in Combating Appendicitis Harvard Medical School Building D, Amphitheatre
- *8 15 P.M. Robert Brigham Hospital, Clinical Meeting 125 Parker Hill Avenue, Boston
- Evening Meeting The Massachusetts Society for Social Hygiene, University Club, Boston.

Wednesday, April 24—

- 6 45 P.M. Massachusetts Society of Examining Physicians (Dinner) Copley-Plaza, Boston

Thursday, April 25—

- *12 M. Clinico-Pathological Conference Massachusetts General Hospital
- *12 M. Clinico-Pathological Conference Children's Hospital
- *3 30 P.M. Medical Clinic Dr Christian Peter Bent Brigham Hospital
- 14 30 P.M. Surgical Clinic Children's Hospital Amphitheatre

Friday, April 26—

- *12 M. Clinical Meeting of Children's Medical Staff Massachusetts General Hospital Ether Dome
- *12-1 Boston University School of Medicine Surgical Clinic in the Cheever Amphitheatre of the Boston City Hospital
- 4 P.M. New England Heart Association. Annual Meeting Boston Medical Library
- 4 30 P.M. New England Heart Association Special Lectureship by Dr Dana W Atchley Boston Medical Library
- 6 30 P.M. The New England Roentgen Ray Society Dinner Harvard Club, Boston
- 8 15 P.M. The New England Roentgen Ray Society Children's Hospital, 300 Longwood Avenue, Boston.

Saturday, April 27—

- *10-12 Medical Staff Rounds Dr Christian Peter Bent Brigham Hospital

*Open to the medical profession

†Open to Fellows of the Massachusetts Medical Society

April 23—Robert Brigham Hospital, Clinical Meeting See page 749

April 23—Swedish Experiences with Appendicitis Gunnar Nystrom Professor of Surgery, University of Upsala, Sweden Auspices of Alpha Omega Alpha, Harvard Medical School Building D, Amphitheatre 5 P.M.

April 23—The Massachusetts Society for Social Hygiene will meet at the University Club Boston For information address Dr E Granville Crabtree 99 Commonwealth Avenue, Boston

April 24—Massachusetts Society of Examining Physicians See page 749

April 25—Clinic at the Peter Bent Brigham Hospital See page 747

April 25, 26, and 27—The American Association on Mental Deficiency will meet at the Palmer House Chicago For information address the Secretary, Dr Groves B Smith Godfrey Illinois

April 26—New England Heart Association See page 748

April 26—The New England Roentgen Ray Society See page 748

April 26—Boston University School of Medicine Surgical Clinic at the Boston City Hospital. See page 747

April 29—Massachusetts Tuberculosis League Annual Meeting See page 749

April 29—New England Heart Association See page 748
April 29 - May 3, 1935—The American College of Physicians will meet at Philadelphia. For information address Mr E R Loveland, Executive Secretary, 133-135 South 36th Street, Philadelphia, Pa.

May 6—Conference on Occupational Diseases See page 749

June, 1935—Medical Library Association will meet in Rochester, N Y For details, address the Secretary Miss Frances N A Whitman, Librarian, Harvard University Schools of Medicine and Public Health, Boston, Mass

June 11—American Heart Association. The Eleventh Scientific Session will be held from 9 30 A.M. to 5 30 P.M., at the Hote Claridge, Atlantic City, N J The program will be devoted to various subjects on cardiovascular disease Gertrude P Wood, Office Secretary, 50 West 50th Street, New York, N Y

June 12 and 13—Academy of Physical Medicine, Annual Meeting will be held at the Claridge Hotel, Atlantic City, N J For further details address Arthur H. Ring, M.D., Secretary-Treasurer, Arlington Mass

June 17 to 21—Convention of the Catholic Hospital Association will be held at Creighton University, Omaha, Nebraska. For information address the Most Reverend Joseph Francis Rummel, D D, Bishop of Omaha.

June 24 28—American Urological Association and Western Branch Society, American Urological Association See page 749

June 27-29 Inc—British National Association for the Prevention of Tuberculosis will be held at Southport, England Persons desiring further information should write to Miss F Stickland, Secretary of the Association at Tavistock House North, Tavistock Square, London, W C I, England.

July 1 23—University of Freiburg 1 Br will hold a vacation course of the medical faculty For information address Akademische Auslandsstelle der Universität Freiburg 1 Br, Schwimmbadstrasse 8, Germany

July 22 27—Seventh International Congress on Industrial Accidents and Diseases, Brussels, Belgium. The American Committee of the Congress is under the chairmanship of Dr Fred H Albee, New York, for the Section on Accidents, and that of Dr Emery R. Hayhurst, Columbus, Ohio, for Industrial Diseases The American delegation to the Congress will sail from New York on July 8 and visit London, Amsterdam, The Hague and Paris, and, optionally, Budapest. Physicians interested in the Congress or in the medical tour in conjunction with it, may address the Secretary, Dr Richard Kovacs, 1100 Park Avenue, New York City

October 7-10—American Public Health Association will meet in Milwaukee, Wisconsin For information address the American Public Health Association, 50 West 50th Street, New York City

DISTRICT MEDICAL SOCIETIES

ESSEX NORTH DISTRICT MEDICAL SOCIETY

The Annual Meeting will be held in May Time, place and subject to be announced

E S BAGNALL, M.D., Secretary

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

May 8—Annual Meeting Salem Country Club, Peabody Dinner at 6 P.M. sharp (Note change in time)

FRANKLIN DISTRICT MEDICAL SOCIETY

Meeting will be held on the second Tuesday of May at the Weldon Hotel Greenfield Mass

CHARLES MOLINE, M.D., Secretary

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

May 8—Winchester

K. L. MACLACHLAN, M.D., Secretary
1 Bellevue Street, Melrose

NORFOLK DISTRICT MEDICAL SOCIETY

May—Annual Meeting Date, time and place to be announced.

SUFFOLK DISTRICT MEDICAL SOCIETY

April 24—Clinical Meeting at the Children's Hospital The medical profession is cordially invited to attend this meeting

ROBERT L DeNORMANDIE M.D., President.
GEORGE P REYNOLDS, M.D., Secretary

WORCESTER DISTRICT MEDICAL SOCIETY

May 2—Censors' Meeting will be held in the Arts Room of the Worcester Public Library, Elm Street, at 4 30 P.M.

May 8—Wednesday afternoon and evening Annual Meeting of the Worcester District Medical Society The time and place of this meeting will be announced later

ERWIN C MILLER, M.D., Secretary
27 Elm Street, Worcester

WORCESTER NORTH DISTRICT MEDICAL SOCIETY
April 24—Meeting to be held at the Burbank Hospital, Fitchburg Dinner at 1 P.M.

The New England Journal of Medicine

VOLUME 212

APRIL 25, 1935

NUMBER 17

RENAL INFECTIONS*

BY GEORGE GILBERT SMITH, M.D.†

THE subject of renal infection, interesting as it is, is much too complicated to be discussed comprehensively in one brief hour. A thorough presentation of any one of half a dozen aspects of the problem would consume the allotted time. The route by which infection reaches the kidney, the types of infection found, the underlying pathology, the methods of treatment which have been employed, special types of infection such as those of childhood or those occurring in pregnancy,—any one of these subjects would in itself provide sufficient material for a paper. It has seemed best to treat the subject thus evening in the manner of a clinical lecture, describing the various types of renal infection, exclusive of tuberculosis, as I have seen them, and illustrating different groups of infections by abstracts of case histories.

In general I would divide renal infections into those which are simple or primary, and those which are probably initiated, and certainly kept up, by some other pathological condition in the urinary tract. Primary renal infections may be dependent upon conditions outside the urinary tract, such as infected tonsils or teeth, or colitis, or some factor which lowers the resistance of the patient, such as anemia. For example, pyelonephritis frequently accompanies pernicious anemia or the leukemias, and is often the immediate cause of death in these cases. Within the past ten years pyelitis due to these conditions has been seen much less frequently owing to the more extensive use of routine blood examinations and of transfusions, and to the introduction of liver extract.

In spite of the general improvement in the medical care of patients, acute primary renal infections are still common. They occurred in my cases three times as frequently in women as in men, the explanation of this phenomenon is not clear, but I do not believe it can be accounted for by the greater frequency of constipation or movable kidney in the female. Symptomatically, the great majority of these infections begin with cystitis, this may clear up entirely

within a few days, leaving a sterile urine, or renal infection may develop, manifested by renal pain and tenderness and a temperature elevation of at least three degrees. Uncomplicated cystitis may cause a fever of one or two degrees but higher temperatures than this always mean, I believe, that the infection has involved the upper urinary tract. The fact that these infections occur so much more frequently in women than in men suggests that the different conformation of the lower urinary tract is the important factor, in other words, it points to an ascending infection as the method of bacterial invasion. The occurrence of cystitis and often pyelitis following defecation supports this hypothesis.

The corresponding type of renal infection in men is frequently complicated by prostatitis, whether the prostatic infection is primary or secondary to the renal infection is difficult to prove, but since we often find non-specific prostatitis existing without pyelitis, we have here some support for the hypothesis that the infection is an ascending one.

The method by which bacteria ascend from the lower tract to the kidneys is not clear. Years ago Sweet and Stewart demonstrated that bacteria could pass upwards along the ureter by the lymphatic route, this hypothesis has been denied by some investigators on the basis that the lymphatics of the ureter are segmented. Sakata¹ and Bauereisen² showed that there are lymphatics in the muscular coat of the ureter running parallel with the blood vessels. Hundley³, in commenting upon their findings, points out that the blood supply of the upper ureter is different from the blood supply of the lower segment, and infers that the lymphatics may not communicate. We may believe that ascent by way of the lymphatics is possible, but has not been proved with certainty.

Another possible method of ascent is by way of the ureteral lumen. It has been shown many times that fluid cannot be forced up normal ureters by increasing intravesical pressure, but a number of investigators have demonstrated that a vesico-ureteral reflux may occur under certain conditions. Kretschmer⁴ has shown by means of cystograms that this occurs in normal children, Semblinow demonstrated this in animals in 1883 and Wislocki and O'Connor¹¹ and Roger Graves⁵ have done the same. Graves states

*Read at a meeting of the Indianapolis Medical Society February 28, 1935.
†Smith, George Gilbert—Urologist, Massachusetts General Hospital, Palmer Memorial Hospital, and Collis P. Huntington Memorial Hospital. For record and address of author see "This Week's Issue," page 191.



FIG 1 Pyelonephritis. This section shows the round cell infiltration of the cortex. Some of the glomeruli are invaded.



FIG 2 Higher power microphotograph of an area in the section shown in figure 1.

that reflux is due not to the degree of bladder distension but to a state of tonic contraction of the bladder muscle which causes sufficient rise in the intravesical pressure to force the bladder contents up the ureter when the ureteral orifice opens to emit a jet of urine. It would seem not unlikely that this condition might occur during an attack of acute cystitis, when the bladder is in a state of increased tonicity. It is not uncommon, during an attack of acute pyelitis, to have the second kidney flare up a few days after the first, as is evidenced by a sudden recrudescence of fever and tenderness, this time over the second kidney, this occurs during acute infections much oftener than during chronic infections. Pyelitis also may follow the cystitis caused by catheterization, when we may be fairly sure that it is an ascending infection.

The bacteria which are found in these cases are almost always of the colon group. The question whether their activity is limited to the renal pelvis (pyelitis) or whether they invade the parenchyma (pyelonephritis) seems to me to be answered by the incidence of high temperature, tenderness and often enlargement of the kidney. These could not be caused by inflammation of the pelvis alone. It seems probable that during the acute stage of a so-called pyelitis, the renal parenchyma is always more or less affected (Figs. 1 and 2). As the attack subsides, the kidney itself throws off the infection, but the pelvic mucosa especially if it is not perfectly drained, continues to harbor bacteria. If this were not the case lavage of the renal pelvis would not clear up these infections as we know it often does. The temporary depression of renal function is shown by a lessened output of phenolsulphonaphthalein as well as by the retention of nitrogen if the process is bilateral. Such a condition was illustrated by the case of Mrs. S., a woman of thirty-six, who gave a history of occasional attacks of "cystitis" since she was twelve. She entered the hospital with a nonprotein nitrogen of ninety-nine milligrams, she vomited everything and had constant headaches. Bloody urine was obtained from the left kidney, clear from the right. Both staphylococci and streptococci were grown from the left kidney specimen. Pyelograms showed a slight degree of hydronephrosis on the right, but no obstruction on the left. Intravenous saline and glucose were given for several days, the nonprotein nitrogen fell rapidly to twenty-eight, and her urine cleared completely.

The usual attack of pyelonephritis of the primary type is accompanied by a sudden marked rise of temperature, 104° or 105° Fahrenheit being not unusual. The pulse rate, however, does not show a corresponding increase and the patient does not seem so sick as such a high fever would warrant. There may be vomiting and distension, sometimes there is considerable

renal pain, but often only localized tenderness. With proper treatment, or frequently with none, the temperature falls by lysis within three to five days. Severe pain suggests obstruction to drainage from stone, ureteral kink or stricture, or perhaps only from masses of thick pus.

As the acuteness of the infection subsides, the temperature returns to normal and the renal tenderness and enlargement disappear. The urine is likely to remain cloudy for a week at least, usually for much longer. In many cases the pus disappears from the urine, but a bacilluria continues indefinitely unless measures are taken to clear it up. This bacilluria, I believe, is at the bottom of most of the cases of recurring pyelitis, between attacks, the patient, particularly if a woman, suffers from frequent, painful urination. Cystoscopy shows a normal appearing bladder except for perhaps some reddening or bullous edema of the trigone, there may be polyps at the bladder outlet, and the urethral mucosa shows a patchy redness. These symptoms can usually be relieved by urethral dilatation and lavage but will be cleared up much more rapidly if the urinary infection can be controlled. These cases are so common in the practice of all of us that I will not take the time to present examples.

There is another, much rarer type of primary renal infection. This is the so-called acute hematogenous kidney described by Brewer, Cotton, Cunningham and others. The invading organism is the staphylococcus and sometimes the streptococcus pyogenes. That it is brought to the kidney by the blood stream is obvious, for it may be metastatic from an infection on the surface of the body such as a furuncle or carbuncle. The bacteria are probably lodged in the capillary tuft of a glomerulus as tubercle bacilli have been seen to do by Medlar and Gilbert Thomas. The lesion therefore is in the cortex, often close beneath the capsule. It is believed by some that almost all perinephric abscesses begin in this way but I am not sure that this is always the case. These blood borne lesions in the kidney may be of various types; they may consist of a single lesion, the so-called renal carbuncle, or of multiple miliary abscesses. The latter are often found at autopsy in cases dying of renal infection. They may be of various degrees of acuteness ranging from the fulminating infection to one of weeks' or even months' duration. The picture differs from that of colon bacillus pyelonephritis in that the patient is more toxic, the pulse more rapid and the local tenderness very much greater. There may be so much spasm of the abdominal muscles that in a right-sided infection the diagnosis of appendicitis is sometimes made. To add to the difficulty in diagnosis, the urine often contains no pus or blood.

I do not remember having seen an acute case of this type for many years. Two cases of the

subacute variety have come under my care in recent years. One, a man of fifty-three, entered the Baker Memorial with a history of one attack of pyuria occurring ten months before, which apparently cleared up. Four weeks before entrance his present attack began with frequent, burning urination, fever, cough and dull pain in the left flank. He had vomited occasionally and had lost ten pounds in weight. Examination showed a sick looking man, in the left flank and left upper abdomen was a smooth, slightly tender mass the right edge of which reached the umbilicus. His white count was something over 20,000, the urine was loaded with pus. Urine from the right kidney showed no pus, that from the left contained twelve leucocytes per field and some clumps. Pyelograms showed some dilatation of the left ureter and evidence of pressure on the calyces. Left nephrectomy was done, the perirenal fat was infiltrated and the kidney showed two abscesses in the lower pole and one in the upper. The cut surface was studded with abscesses ranging from three to eight millimeters in diameter. Culture showed the staphylococcus aureus. Aside from some suppuration of the wound, recovery was uneventful, and three months later his urine was normal.

The other case was a woman who entered the Massachusetts General Hospital with a temperature of 105° and pulse rate of 130. For three weeks she had had pain in the left flank and abdomen. One week before this pain began she had boils on the left arm, she had chills and fever and general malaise. Pyelograms showed a filling defect in the left kidney. At operation, a carbuncle of the kidney was found, it was about three inches in diameter and occupied the middle third of the kidney. As there appeared to be a line of cleavage between the carbuncle and the surrounding renal tissue, the inflammatory mass was enucleated and the cavity packed with gauze. Although there was some sepsis in the wound, the patient was discharged one month later. Two months later her urine still contained pus.

Let us take up again the colon bacillus pyelonephritis, this time of the subacute or chronic type. These are the cases in which there is usually some cause for the persistence of the infection. Renal stone should always be considered and ruled out by x-ray, I have seen a number of cases of persistent pyuria due to calculus with no history of pain or bleeding.

The relation existing between mobility of the kidney and pyelitis is well recognized. If such kidneys become infected, there are two factors which militate against recovery. The dragging down of the kidney upon the renal vein may produce a passive congestion of the kidney, and the drainage from the renal pelvis may be hindered by the kinking of the ureter caused by descent of the kidney. It is worth noting, how-

ever, that one sees many of these very movable kidneys which escape infection.

An ectopic kidney, with its artery and vein abnormally situated, and its ureter liable to all sorts of distortion, is very subject to infection.



FIG 3 Pyelogram of a case of pyelitis in a woman with unilateral double kidney and ureter

Other congenital anomalies predispose to infection, perhaps because the drainage is imperfect. There were five cases of unilateral double kidney in the series of two hundred and fifty renal infections upon which this paper is based, but in most of the cases, the infection involved the



FIG 4 Horseshoe kidney with infection in the right pelvis. The left side has been transformed into a large calcified cyst

normal kidney as well as the abnormal one. (Fig 3)

Horseshoe kidney is another condition which carries the liability to infection, as has been shown so well by Gutierrez in his monograph on

this anomaly The accompanying pyelogram (fig 4) shows a very interesting case in which the left half consisted of a huge calcified hydronephrosis, the right half was definitely infected Removal of the hydronephrotic half produced no apparent improvement in the right sided infection, although it was thought that freeing the right side and allowing it to fall into



FIG 5. Calcified cyst removed from patient whose pyelogram is shown in figure 4

a more normal situation might improve the drainage

Obstruction to drainage may involve a single calyx only I have pyelograms of two such cases to show you One was a girl of twenty one who, following an operation for appendicitis, had left pyelitis Since then a period of fifteen months, she had suffered from backache, painful urination and some urinary leakage The urine showed a few leucocytes and the colon bacillus Pyelograms showed a small cystic cavity communicating with the pelvis of the left kidney At operation this cyst was found to be a dilated calyx, the neck of which was stenosed to a pinpoint opening This cyst was opened, the membrane lining it electrocoagulated, and a pack left in The patient's symptoms were relieved and one month after operation the urine was sterile

A similar case to this, but more advanced occurred in a woman of forty nine who three weeks before being seen had experienced sharp pain in the left flank, accompanied by fever and nausea After two weeks in bed she seemed well again, but a sharp recurrence of her pain brought her to me Pyelograms (fig 6) showed a good sized cavity in the middle third of the left kidney, and thick pus containing colon bacilli from that side Nephrectomy was done The perinephric fat was indurated in the middle of the kidney was a thick walled smooth cavity containing about one ounce of thick pus It communicated with the pelvis by a very small

orifice and probably represented a dilated calyx Microscopic examination showed the cortex and medulla filled with fluid exudate and wandering cells "Chronic suppurative nephritis"

The next site for obstruction is at the uretero pelvic junction I could show you a number of illustrations of this, but one or two will suffice It is unreasonable to expect that a hydronephrosis, once infected, will ever clear up unless the drainage can be materially improved. Here are two illustrations of this condition, one slight, the other advanced The former is a woman (fig 7) of forty eight, who six years

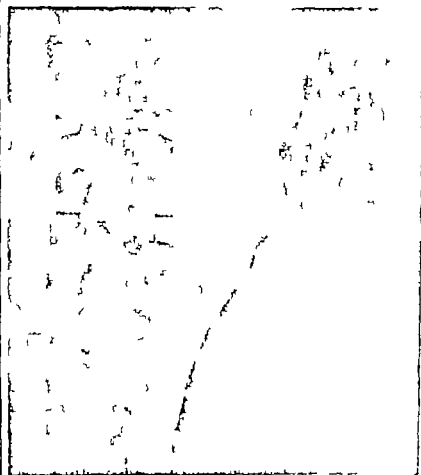


FIG 6. Pyelogram showing an abscess of the middle calyx.

ago had a stone removed from the right kidney Within the past year she has had several attacks of pyelonephritis and between attacks the urine clears up except for the presence of colon bacilli Pyelograms showed a definite extrarenal hydronephrosis of the right kidney For the past six months she has been free of acute attacks and has had very few symptoms referable to her urinary condition Comparison of pyelograms made a year ago and again recently show no increase in the hydronephrosis. Because she is not considered an excellent operative risk and because of the lack of symptoms operation at the present time does not seem advisable

The more advanced case is that of a man of sixty In 1925 he was found to have a marked hydronephrosis with considerable damage of the kidney tissue on the right side and a totally destroyed pronephrotic kidney on the left I

did a plastic operation on the pelvis of the right kidney, there was a large aberrant artery which was the cause of the obstruction at the ureteropelvic junction and to avoid cutting this I separated the ureter from the pelvis and carried it to the other side of the aberrant artery. A month later I removed the left kidney. This

cases in which the stone causes sufficient obstruction to produce dilatation show no infection unless bacteria are introduced by prolonged or too vigorous manipulation. With the removal of the stone the infection usually clears up, except in a few cases in which pyelonephritis has existed for so long a time that the renal parenchyma has become permanently damaged.

Strictures of the ureter have been alleged by some writers, notably Hunner, to be one of the most frequent causes of renal infections. With this view I cannot agree. There are in normal ureters variations in the calibre of the lumen, the tract being narrowed physiologically at the ureteropelvic junction and at the entrance

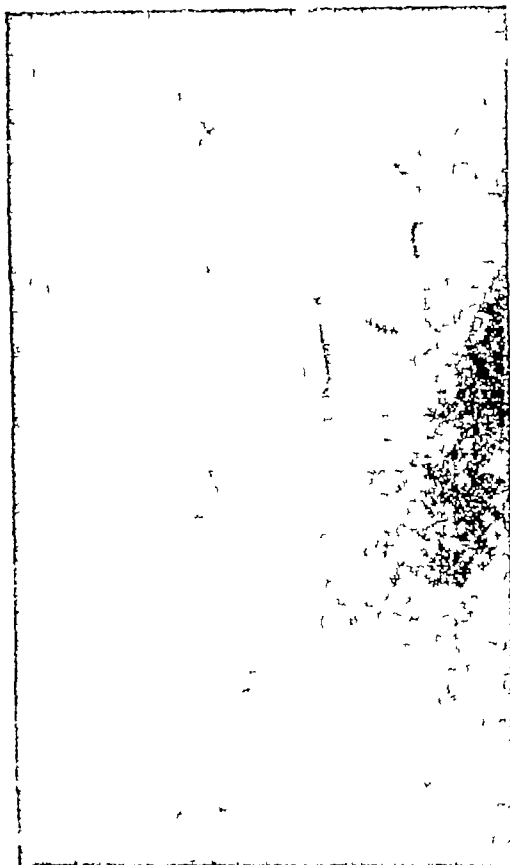


FIG 7 Pyelogram showing first degree hydronephrosis with mild but persistent infection and no diminution in renal function

patient did well for seven years, then he began to have attacks of pyelonephritis, owing to increasing obstruction at the ureteropelvic junction. A permanent nephrostomy was done and since that time he has been free from further attacks.

Any condition in the ureter which interferes with adequate drainage of the kidney may be a factor in keeping up an infection. Ureteral kinks, although much discussed a few years ago, seem to have lost some of their prestige as troublemakers. They are usually associated with nephroptosis, so that the responsibility for the renal infection has to be divided between them. Unless the ureter is fixed at the point of flexion and is dilated above this point, I doubt if we should be too concerned about these kinks.

Ureteral stones are a frequent cause of renal infection, although it is remarkable that many



FIG 8 Ureteral stricture

into the bladder. A stricture, strictly speaking, is a constriction caused by scar tissue and round cell infiltration, and should be demonstrable at autopsy. The fact that an eight or nine French bulb does not pass with equal facility through the entire length of the ureter does not, in my opinion, necessarily indicate the existence of a stricture. True strictures do exist, of course, I have found fourteen records of cases that I have seen. Ten of these were in women and were caused by pelvic inflammation in one, cancer of the ovary in one, cancer of the cervix in two, one followed ureterolithotomy, another

followed radium treatment of a carcinoma of the uterus (Fig 8). Another was due to tuberculosis, the opposite kidney having been removed for this disease. In three the etiology was unknown. Four were in men, and all were of unknown etiology. The striking thing about these strictures was that occasional dilatation every two, four or even six months, kept the patient perfectly comfortable and in most cases free of infection. Three of the men appeared to have soft strictures which were cured by one or two dilatations, one of these when seen seven years later had been perfectly well. In two of them hematuria was the predominating symptom. One of the women was cured by a plastic operation on the upper ureter, in which there was a spindle shaped stricture several centimeters in length, another required nephrectomy for pyelonephritis. In a third, nephrostomy was done and the ureter dilated from above, with relief of pain and infection.

Another form of ureteral stricture is the condition known as megaloureter, in which the ureter is dilated from the bladder wall to the renal pelvis. In these cases that I have seen the ureter admits a number six catheter easily and there is no evidence of constriction in the intramural portion, but immediately outside the bladder the ureter is markedly dilated and atonic. This condition is sometimes found in children and has been thought by some to be congenital, it is sometimes bilateral. In one of my cases there was no infection, in another both kidneys were seriously damaged. One woman required nephroureterectomy.

Obstruction to drainage of the upper urinary tract due to conditions at the bladder neck is common. The damage done to kidneys by a combination of back pressure and infection is best shown in prostatitis. Renal infection may follow any condition which prevents complete emptying of the bladder such as cystocele, multiple sclerosis, tabes dorsalis, and urethral stricture.

The extent of the damage done to kidneys by chronic infection is variable, without doubt it depends largely upon the coincident obstruction to drainage. You have all seen patients with chronic pyelitis whose kidneys appear to function perfectly after years of pyuria. Occasionally a case is seen in whom the infection has resulted in a definitely lowered renal function even though no evidence of obstruction can be found.

The slow progress of these chronic renal infections is illustrated by one of the first patients that I had. In 1911 he was a boy of twenty-two who came to me because of a urethritis. As his urine did not clear up I investigated his upper urinary tract. The left ureter I could not catheterize but the function of the left kidney as tested by indigo carmine was very poor. The right kidney was hydro-

nephrotic, with a capacity of seventy cubic centimeters. The total phthalein test showed an appearance time of one hour, in two hours only 20 per cent was excreted. This was before the introduction of pyelography, but the diagnosis of right hydronephrosis, at that time uninfected, was clear. There was no way of determining the condition of the left kidney, guinea pigs were negative for tuberculosis. I saw the patient intermittently until 1914, although I advised operation on his right kidney, he steadfastly refused. In 1926 he came in again complaining of occasional pain in the right flank and cloudy urine. He had married and had felt well for the preceding four years. I advised further study, but again he shied off. In 1930, almost twenty years after I first saw him, he again appeared. Aside from having had an attack of shingles he had been well. Neither kidney was palpable. He had no residuum in the bladder his blood pressure was 140/100, the urine was very cloudy, full of pus, with a specific gravity of 1.010 and a large trace of albumin. His nonprotein nitrogen was eighty milligrams per hundred cubic centimeters of blood. This time I was less enthusiastic in advising study or possible operation, at any rate, he refused further investigation.

The study of such cases as this has been greatly aided by intravenous urography. If we had had this method in 1911, the condition of the right kidney could have been easily ascertained. As regards the left kidney, I doubt if our knowledge of its condition could have been materially increased, for when a kidney will not excrete phthalein in fair concentration neither will it excrete the intravenous medium. Intravenous pyelography is valuable up to a certain point it will show whether a kidney is normal as to function and pelvic conformation but during the more acute phases of renal infection or if the kidney drainage is obstructed to a considerable degree, there may be no visible excretion of the medium.

This has been shown a number of times in our cases, and we have frequently found that the inability of a kidney to excrete the pyelographic medium does not necessarily mean that it is a worthless kidney.

In all such cases, and indeed in the vast majority of cases showing any evidence of upper tract pathology we have supplemented intravenous pyelography by cystoscopy and retrograde catheterization of the ureters. I will not consider the diagnosis of the numerous types of pathology which are associated with infections of the kidneys, urologists are familiar with these, and they can be made with certainty only by means of the urologist's skill and urological tools. The point I wish to emphasize is that in all cases of persistent hematuria or pyuria should be subjected to a thorough urological investigation.

The treatment of renal infection divides naturally into two phases, one dealing with acute infections, and one with chronic. In the acute stage, treatment consists largely in standing by and giving the patient a chance. The vast majority of these cases are self-limited, all that the doctor needs to do is to reassure the patient, see that he gets at least one hundred ounces of fluid every twenty-four hours, intravenously if necessary, and insure adequate bowel action. If there is much pain, a plain x-ray of the urinary tract is advisable, for if a ureteral stone is at the bottom of the trouble, it should be got after at once. Heat over the affected kidney is soothing, the administration of alkalies increases diuresis and alleviates the dysuria which so often exists.

I have had no experience with the use of pituitrin, as advised by Darley and Draper⁴, it is said to hasten recovery by increasing the tone of the muscle of the pelvis and ureter. The use of methenamine intravenously, thirty-one grains (two grams) once or twice a day, has appeared to help in bringing about a rapid fall in temperature. If methenamine is used, of course the alkalies should not be employed, and to be logical one should not force fluids to any great extent. It has seemed better to me to rely upon alkalies and diuresis during the first two or three days of an acute pyelonephritis, changing to methenamine and acidification of the urine as the patient's condition begins to improve. After all, most of these acute cases will quiet down no matter what form of therapy is employed, so long as they have sufficient fluids.

If the acute attack does not show signs of subsiding within four or five days, one should suspect that he is dealing with something more than a simple pyelonephritis. If the kidney is definitely enlarged and tender and is getting more so every day, the ureter should be catheterized to rule out obstruction. The catheter may be left in for a day or so, provided this gives relief. If no obstruction is found, the question of surgical exploration should be seriously considered. Nephrectomy may be necessary in the fulminating cases of acute suppurative nephritis, in less acute cases decapsulation or nephrotomy may be adequate.

If the acute attack subsides, but the urine continues to be cloudy, internal medication should be given a thorough trial. In my experience methenamine, either orally or intravenously, has been the most effective drug when the infecting organism is the colon bacillus. Since it is not split up into formaldehyde and ammonia except in a strongly acid urine, the fluid intake should be reduced to sixty ounces per day and the urine acidified by ammonium chloride. At least sixty grains of the latter should be given every twenty-four hours, the enteric coated tablets of seven and one half grains each

may be used, or the plain tablets of five grains each taken with at least four ounces of water. I usually give fifteen grains of methenamine every eight hours, the twenty-four hour amount should be at least forty-five grains. If the urine cannot be acidified, or if methenamine proves too irritating for the bladder, methylene blue in two grain tablets given three times a day has sometimes acted effectively. In the coccus infections, sandalwood oil, perhaps combined with methylene blue, alleviates bladder discomfort and seems to inhibit bacterial activity to some degree. None of the other drugs commonly used for this condition have seemed to me as effective as those mentioned in the preceding paragraph.

If, after a week or two of internal medication, the urine does not appear to be clearing, pelvic lavage with 1 per cent mercurochrome or 1 per cent silver nitrate may be done. I hesitate to cystoscope a patient who is in the acute phase of renal infection unless there is a definite indication for it, the risk of traumatizing an acutely inflamed mucous membrane and the fatigue induced in the patient to my mind outweigh the advantages of the procedure. In the subsiding or chronic phase, however, the situation is altogether different. The drug used is not important, I have seen many a pelvic infection clear up after pyelography with 12.5 per cent sodium iodide.

The use of vaccines, at one time so popular, seems to have been abandoned by most urologists. The intradermal injection of a bouillon filtrate, introduced by Vincent O'Connor, at first report appeared to be of value, but this method did not fulfill its promise. It may be that further work along this line will turn up something of value, the most that could be accomplished by vaccines, I believe, would be the development of an individual's resistance to recurring attacks of pyelonephritis, the local infection in the renal pelvis will in all probability not be greatly affected. In combination with pelvic lavage, however, vaccines may have a limited value.

The ketogenic diet appears more promising, reports of its use, especially in children, have been encouraging. It consists, as you know, in the administration of a diet rich in fat and low in carbohydrates. Ketone bodies are excreted in the urine and apparently have a definite bactericidal value. The patient cannot be kept on this diet for more than two weeks, as acidosis develops. This method would seem to have its greatest usefulness in those cases of persistent bacilluria in whom no obstructive lesion can be demonstrated. My own experience with it is too limited to be of value. I have used it in two cases, but as both showed slight obstruction to renal drainage on one side or the other, it is not remarkable that the results were unsatisfactory.

There has not been time to discuss the special varieties of renal infection, such as those occurring in children and in pregnancy or the puerperium. The therapeutic principles are the same, forced fluids and alkalis during the acute stage, active attack on the infection by means of internal urinary antiseptics and pelvic lavage during the subacute stage, diligent search for the obstructive lesion if the infection does not clear up. The work of Bugbee and of Campbell has taught us that persistent urinary infections in children are in all probability due to underlying congenital anomalies or to stone. Crabtree and Prather have shown that dilatation of the upper urinary tract is usual in pregnancy and that this dilatation persists for three months after delivery. In these cases the value of pelvic lavage is undoubted, as dilatation of the lower end of the ureter promotes drainage from the dilated upper ureter and renal pelvis.

REFERENCES

1. Bauerleisen, A.: Quoted by Hundley J. M. Jr.: Pyelitis in the female. *J. A. M. A.* 16: 603 (Feb. 27) 1926.
2. Crabtree, E. G. and Prather, G. C.: Urinary diseases in pregnancy. *J. Urol.* 4: 493 1921.
3. Cunningham, J. H. Jr.: Acute unilateral hematuria in sections of the kidney. *J. A. M. A.* 64: 231 (Jan. 16) 1916.
4. Darley, W. and Draper, W. B.: Posterior pituitary in pyelitis. *J. A. M. A.* 103: 677 1921.
5. Graves, R. C. and Davidoff, L. M.: Studies on the ureter and bladder with special reference to regurgitation of the vesical contents. *J. Urol.* 10: 186 (Sept.) 1923.
6. Hundley J. M. Jr.: Pyelitis in the female. *J. A. M. A.* 86: 603 (Feb. 27) 1926.
7. Kretschmer, H. L.: Cystography; its value and limitations in surgery of the bladder. *Surg. Gynec. Obst.* 23: 709 1916.
8. Sakata, Quoted by Hundley J. M. Jr.: Pyelitis in the female. *J. A. M. A.* 86: 603 (Feb. 27) 1926.
9. Sembillon: Quoted by Graves, R. C. and Davidoff, L. M.: Studies on the ureter and bladder with special reference to regurgitation of the vesical contents. *J. Urol.* 10: 186 (Sept.) 1923.
10. Thomas, G. J.: Renal tuberculosis. *J. A. M. A.* 84: 29 (Jan. 26) 1920.
11. Wislocki, G. B., and O'Connor, V. J.: Experimental observations upon ureters with special reference to peristalsis and antiperistalsis. *Bull. Johns Hopkins Hosp.* 31: 187 1920.

THE TRANSPLANTATION OF UNINJURED TUMOR CELLS*

BY OLIVE GATES, M. D. AND SHIELDS WARREN, M. D.†

WHILE in most work with experimental tumors the use of small masses of tissue or emulsions of cells for transplantation is satisfactory, there are instances where the ability to obtain uninjured cells is of great importance. Any process of grinding, shredding or mincing of the tumor necessarily causes a considerable degree of cellular injury, and if very small doses of tumor emulsions are used, the presence of any viable cells is open to question.

Apparently the value of the use of peritoneal fluid from cases of experimentally induced carcinomatosis peritonei has not been widely recognized. In 1927 Hesse¹, working with the Flexner-Jobling rat carcinoma, found in the course of a study of the peritoneal lesions that the tumor could be transmitted by intraperitoneal injection of ascitic fluid containing the tumor cells. The character of these peritoneal fluids was further studied by Koch², who noted that the cells present were usually single, floating free in the fluid. Loewenthal and Jahn³ showed that intraperitoneal injection of Ehrlich mouse carcinoma produced a similar fluid which could be utilized for inoculation and emphasized the small dosage capable of initiating a tumor. Collier⁴ injected this Ehrlich mouse ascitic fluid not only intraperitoneally, but in trapeurally intracranially, and intravenously. With the intravenous injections he obtained no evidence of pulmonary metastases, as deter-

mined by inoculation of material from the lungs into other mice.

In the course of our studies on the mechanism of pulmonary metastasis we attempted reproduction of the picture seen in pulmonary metastases in human beings by intravenous injection into rats of various types of emulsion of the Walker carcinoma 256. The high proportion of traumatized cells in emulsions prepared by grinding or screening led us to the use of fluid from cases of induced carcinomatosis peritonei.

The initial lesion is produced by the implantation of a mass of tumor tissue weighing 0.05 Gm or less free in the peritoneal cavity. At the end of 15 or 20 days most animals develop marked evidence of ascites, and exploration reveals the peritoneum studded with tumor nodules and filled with a thin, bloody fluid, often 20 cc or more in amount. This fluid is used as the inoculant. The cells occur in it largely singly, but with scattered clumps running up to 10 or 15 cells also present. By the use of 1 per cent acetic acid to hemolyze the red cells an accurate count of the tumor cells may be made with a hemocytometer. They can be readily distinguished by their morphology from the mesothelial cells of the peritoneum. All the cells seen are apparently viable. Counts range from 60,000 cells or clusters per c. mm. upward. The intravenous injection of varying amounts of this exudate produces massive pulmonary metastases leading to the death of the animal in 15 to 20 days. The immediate mortality following intravenous injection of this fluid is much lower than in the case of the usual tumor emulsions. Other methods of inoculation of the peritoneal fluid (intraportal,

*From the Laboratory of Pathology, Collis P. Huntington Memorial Hospital.

†Gates, Olive—Assistant Pathologist, Collis P. Huntington Memorial Hospital. Warren, Shields—Pathologist, New England Deaconess, Huntington Memorial, Pondville State, New England Baptist and Robert B. Brigham Hospitals. For records and addresses of authors see "This Week's Issue," page 751.

intratesticular, etc.) appear equally successful

The advantages of this method are obvious. First, an accurate count of the number of cells present can be made. All the cells present are apparently viable. The fluid is easily handled and the tumor cells remain viable in it for considerable periods. It is of low toxicity and large doses are tolerated. If desired that only single cells be injected, a light centrifugalization will remove the cell clumps. By appropriate dilution any desired dosage of uninjured single tumor cells may be fairly readily obtained.

REFERENCES

1. Hesse T. Ueber experimentellen Bauchfellkrebs bei Ratten. *Centralbl. f. Bakteriol. (I Orig.)* 102: 367 (May 13) 1927.
2. Koch J. Welche Tatsachen und Schlussfolgerungen ergeben sich aus der Infektiosität des Aszites beim Bauchfellkrebs der Ratte. *Centralbl. f. Bakteriol. (I Orig.)* 107: 332 (June 20) 1928.
3. Loewenthal H. und Jahn G. Übertragungsversuche mit carcinomatöser Milz-Aszitesflüssigkeit und ihr Verhalten gegen physikalische und chemische Einwirkungen. *Ztschr. f. Krebsforsch.* 57: 439 1932.
4. Collier W. A. Über den Nachweis des Agens des Ehrlichen Aszitescarcinoms in den Organen der Maus. *Ztschr. f. Krebsforsch.* 41: 803 1934.

THE DIETARY MANAGEMENT OF DIABETICS AT THE DIABETIC CLINIC OF THE INFANTS' AND CHILDREN'S HOSPITALS, BOSTON, MASS *

BY ALLAN M. BUTLER, M.D.†

OVER the past five or six years very little has been added to our knowledge of the abnormal physiology of diabetes which as yet can be turned to clinical use, and no advances have been made in specific therapy. There has, however, been an accumulation of clinical experience which has led to a general acceptance of certain facts which may be used to the patient's advantage.

(1) Almost all children with diabetes—that is, children presenting the symptoms of polyuria, polydipsia, loss of weight, fatigue, and having glycosuria, ketonuria, hyperglycemia, and a diabetic blood sugar curve,—require insulin if their physical condition is to be such as to permit their leading normal lives.

(2) Because of Allen's¹ pre-insulin experience with sub-maintenance diets and the relation of obesity to diabetes, diets of excessive caloric value should be avoided.

(3) The use of low carbohydrate, low protein, and high fat diets such as used by Newburgh and Marsh² and Petró³ before the introduction of insulin but which are modified to provide for adequate growth and development do not reduce the number of insulin injections required per day, and thus the use of these diets seems no longer necessary.

(4) There are certain advantages in a liberal carbohydrate diet and no demonstrable contraindications. The advantages are as follows: (a) The blood fat and cholesterol are kept within normal limits. Joslin⁴ believes this is important in preventing certain of the complicating sequelae of diabetes. (b) The child eats food more nearly like that of others about him and the temptation to take food outside of that prescribed is less. These two results are of psychological importance. (c) With the onset of an infection the dietary management is easier on

the liberal carbohydrate diet than on the high fat diet, inasmuch as the carbohydrates are usually well taken and are sufficient with the continuation of the insulin to prevent ketosis and acidosis.

(5) Diabetic children usually do better when showing a trace of sugar than when on a régime that renders their twenty-four hour urine specimen continuously sugar free. The latter result usually cannot be accomplished without subjecting the child to either an unwarranted number of insulin injections or periods of hypoglycemia, and in so far as is known the occasional appearance of sugar in the urine is not harmful.

These clinical observations have led to a steady increase in the carbohydrate content of diabetic diets over the past nine years, until now there are but few clinics prescribing less than 175 grams of carbohydrate per day per adult patient.

In addition to these generally accepted facts, experience in the care of 116 diabetic infants and children over the past nine years in the out-patient department of the Infants' and Children's Hospitals has led us to certain beliefs.

(1) The need for insulin in the diabetic child is so general that we see no advantage in attempting to initiate treatment without insulin.

(2) No information of use in the subsequent care of the patient is gained by attempting to determine a patient's tolerance at the beginning of treatment, for the tolerance at this time is often more dependent upon the previous régime, the presence of infection, or the nutritional and nervous state of the patient, than upon the true severity of the diabetes.

(3) No increase in the ultimate tolerance of the patient is obtained by placing the patient on sub-maintenance diets for a period of time.

If these clinical observations and the conclusions therefrom are sound, the dietary man-

*Read before the meeting of the New England Pediatric Society, December 14, 1934, Boston.

†Butler, Allan M.—Associate Physician, Children's and Infants' Hospitals, Boston. For record and address of author see This Week's Issue, page 791.

agement of the diabetic can be reduced to a relatively simple task and hospitalization of untreated or improperly treated diabetic infants and children can be reduced markedly below that which commonly obtains.

The increased allowance of carbohydrate reduces the percentage variation of inaccuracies and makes accurate weighing of the diet unnecessary. No matter how carefully diets are weighed out, estimations from food tables permit only rough approximations of the carbohydrate, protein, fat and total calories actually consumed. By eliminating foods very high in carbohydrate and putting definite maximum limits to the amount of certain foods fairly high in carbohydrate we have found it unnecessary to specify the size of helpings of all but a few foods. The dietary instructions to all our diabetics over two years of age* are as follows:

(a) Eat no candy, cakes, cookies, jams or sugar, and no desserts to which such ingredients have been added in any considerable amount.

(b) Eat but one piece of bread a meal or its equivalent in crackers.

(c) Have at one meal only one of the following: rice, macaroni or potato and of the one take only one moderate helping.

(d) Eat but half a banana or apple at any one time.

(e) In the middle of the morning take some form of food containing between 10 and 20 grams of carbohydrate. If at any time symptoms of hypoglycemia appear, the juice of one orange or some food containing 10 grams of glucose is to be taken immediately.

(f) Except for these instructions eat as desired at mealtime provided ordinary common sense is applied in not stuffing on any particular dish.

On such a régime, insulin is given in sufficient amounts and appropriate distribution to render the patient almost sugar free and free from hypoglycemic periods. Having specified the diet as given above, the successful administration of insulin in terms of avoiding hyper and hypoglycemic periods and of a minimum number of injections is the physician's technical task.

The reason for specifying mid morning carbohydrate is to permit the giving of a relatively large proportion of the twenty four hour insulin dosage before breakfast without the danger of an insulin reaction late in the morning before lunch. By this means children four years of age or over may be given large enough doses of insulin before breakfast so that most of them will require no insulin before lunch and many of them will require no insulin

throughout the remainder of the twenty four hours. After the twenty four hour requirement of insulin has been established and the child has built up its glycogen stores, the optimum number and time of the injections are determined. If the total twenty four hour dose of insulin for a child over four years is 12 units or less, a single injection before breakfast should be tried. If the twenty four hour dose is above 12 units and under 30 an injection before breakfast and one before supper are usually required and suffice. In older children twenty four hour doses up to 50 units can be divided into two such doses with success. The before breakfast dose should be the larger of the two. If more than two doses in twenty four hours are required, the third dose should be given before dinner or at 9:00 P.M. Trial will determine which is the best period. In contrast to older children infants or small children usually require three daily injections of insulin even when the twenty four hour dosage is small, as they are subject to rapid fluctuations in blood sugar concentration.

In estimating the success of insulin administration careful observations of the amount of sugar in single and twenty four hour urine specimens indicate the times and degree of hypoglycemia but do not indicate fluctuations of the blood sugar below desirable limits. To check the degree of hypoglycemia, blood sugar determinations at the periods of anticipated hypoglycemia are helpful. Such periods are likely to occur three to seven hours after an insulin injection, when the insulin is given before a meal. In the hospital or doctor's office a capillary blood sugar determination can be done with but little inconvenience to the patient, but routinely the detection of hypoglycemia must be left to the observation of the patient or parent. Older children can be readily educated to recognize the early symptoms and should be taught to do so. In younger children careful observation of the patient for signs of early reactions will usually suffice for their detection. Instructions concerning the treatment of hypoglycemic symptoms should emphasize the necessity of ingesting 5 to 10 grams of glucose with the detection of the earliest symptoms. There is no need for hesitancy in taking this amount of glucose, if given as orange juice or some food* that is not particularly tempting to the child, for it can do no harm and may be urgently needed.

The experience of caring for thirty six patients over the past year on a diet as prescribed above has shown no need for an increase in the number of insulin injections and no decrease in the control of glycosuria, hypoglycemia and hypercholesterolemia. The good results obtained would seem partly due to the fact that

*For infants under two years of age diet corresponding to those given normal infant of their age and weight are prescribed the carbohydrate intake being kept at the lower limit of normal.

All our patients are instructed to keep a can of Karo syrup readily available at home and at a hotel.

such dietary instructions result in a properly balanced diet subject to but minor variations in carbohydrate, protein, fat, and caloric composition. Table 1 presents a record, as estimated from food tables, of maximum variations in the food ingested voluntarily by ward diabetic patients under such a régime. The patients are arranged in the order of their increasing weight. It can be seen that the caloric intake per pound is roughly appropriate for the size of the patients. In the carbohydrate, protein, fat, and total caloric columns the average daily intake with the maximum plus and minus variations are given. Considering that the data were obtained from hospital patients over periods when they were both in bed and up and about the ward the variations in the daily composition of the diet of a given child are slight. Actually the variation that does occur is probably beneficial rather than otherwise. The child eats more when he has been active or hungry from hypoglycemia and eats less when inactive or feeling unwell from a digestive disturbance or infection. On a constant insulin dosage such changes in the diet will tend to keep the patient in balance in spite of changing conditions.

TABLE 1

AVERAGE COMPOSITION AND VARIATION OF DIABETIC DIETS

Patient	Wt. Lbs	Food, Grams			Total Cal	Cal / Lb
		C	P	F		
J B	25	93	44	46	962	38
9 days		±9	±4	±6	±89	
B F	36	102	49	50	1054	29
5 days		±4	±3	±1	±13	
R F	46	144	66	54*	1326	29
19 days		±17	±15	±12	±150	
M M	53	154	70	72	1544	29
8 days		±14	±6	±11	±80	
J K	61	159	70	64	1492	25
5 days		±10	±6	±10	±72	
S C	70	170	71	65	1549	22
16 days		±25	±8	±10	±209	

*Low fat specified.

The institution of this régime has lessened the hospitalization period of these patients markedly. If a patient enters the hospital without coma, he is immediately placed under such dietary management, the fat being limited until any ketosis disappears. If he enters the hospital in coma, the coma and acidosis are cleared up within the first twenty-four hours and the child is then placed on the régime. Untreated patients entering the hospital may be adjusted to diet and insulin within three to six days and are discharged to the out-patient department or their private physician where final adjustments to home conditions are made during the next week.

The actual adjustment of one child to diet and insulin was as follows:

An eight year old untreated diabetic girl went into diabetic coma June 11, three days before admission. During those three days she received 200 units of insulin, fluids and carbohydrate and recovered from coma. She entered this hospital at 3 P.M., June 14, having received 30 units of insulin before breakfast. The urine showed a thick green color on testing with Benedict's solution and a one plus acetone by the nitroprusside test. The capillary blood sugar was 100 mgm. per cent. She was placed on the general diabetic diet and was given 20 units of insulin before supper. The following morning the before breakfast urine showed a brown color in the Benedict's test and no acetone. The fasting capillary blood sugar was 230 mgm per cent. The history and data thus far obtained without any delay in the treatment established the diagnosis of diabetes mellitus beyond any doubt.

She was given 28 units of insulin before breakfast. No mid morning carbohydrate was given and at 11 30 A.M. the capillary blood sugar was 50. This low blood sugar illustrates the tendency for late morning hypoglycemia when relatively large doses of insulin before breakfast are required to care for the noon meal without insulin immediately before it. The urine showed a trace of sugar before supper and the patient was given 24 units of insulin. At 8 30 P.M. she felt hot and "shaky" and was given 8+ ounces of orange juice with immediate relief of the symptoms. The before breakfast urine on June 16 was cloudy green to Benedict's and the fasting capillary blood sugar 190 mgm per cent. She was given 20 units of insulin before breakfast, 8 before lunch, and 20 before supper and 8 ounces of orange juice were given at 8 P.M. Benedict tests of the urine at 12 30 P.M. following lunch, 8 P.M., 5 A.M. and 7 A.M. were respectively light green, blue, blue, and light green. She was discharged to the Out-Patient Department at 12 noon, June 17, after three days in the hospital taking 20 units of insulin before breakfast, 8 before lunch, and 16 before supper.

During the next ten days three visits were made to the Out Patient Department and over that period her insulin was reduced to 20 units before breakfast and 12 before supper. The child then went to New Hampshire and by instruction through letters the insulin was reduced gradually until at the end of four weeks she was taking only 12 units before breakfast. In two months the child had gained 10 lbs., had had no insulin reactions, and from the daily record of three urine tests per day had no periods of excessive hyperglycemia.

The discovery of diabetes in this child on June 14 while traveling east on the train for the summer had taken but 5 days from her summer vacation and caused no other limitations of her summer activities.

Both parents and children have been enthusiastic concerning the régime outlined above. The mother is relieved of the burden of preparing and weighing out special diets. At the beginning of caring for her child she is not over-

whelmed by the necessity of acquiring a mass of knowledge, but has time to acquire this gradually. The child's limitations both in his own eyes and in those of his playmates are made to appear a minimum. With a little thought and without attracting attention he can eat meals at school or away from home. Thus without detracting from his well being a great deal is added to his enjoyment of life.

Such a simplification of dietary management does not indicate that experience in the management of diabetic children on the part of the physician is not required. There are many points concerning the variations in the twenty-four hour, weekly, and monthly blood sugar levels and reactions to infection that experience alone teaches how to manage. Moreover for the untreated or improperly treated case the determination in a few days of the daily insulin requirement together with the optimum number of injections and the times for giving them is largely dependent upon experience with many cases. Nor does such simplification in dietary régime mean that the patient's metabolism is followed less carefully. The tri- or bi-daily urine tests and twenty-four hour tests must be carried out by the patient or parent and his knowledge of the abnormal metabolism and its treatment must be such as to permit his wisely making minor adjustments in the insulin dosage on the basis of the urine analyses

obtained and the symptomatology experienced at given times. Indeed the simple dietary régime permits the attention of the child and parent to be focused to better advantage on the details essential to treatment. The results of clinical experience with this simplified dietary régime do, however, indicate that it is of practical advantage in the care of diabetic children, and may contribute much to their happiness and that of their parents.

SUMMARY

A simple dietary régime for diabetic children is described which provides an appropriate and properly balanced diet subject to limited fluctuations in composition and calorie content. The routine procedure of prescribing such a diet and then giving insulin to establish proper carbohydrate metabolism is justified by the results of clinical experience, reduces the period of hospitalization of new patients, and contributes to the happiness of diabetic children and their parents.

REFERENCES

1. Allen, F. M.: The treatment of diabetes. Boston M. & S. J. 172: 41 (Feb. 18) 1915.
2. Newburgh L. H. and Marsh, P. L. High fat diet in treatment of diabetes mellitus. Arch. Int. Med. 31:453 (April) 1923.
3. Petró, K. Ueber die Gründe der diätetischen Behandlung des Diabetes besonders des Diabetes gravis. München. med. Wochens. 74:1123 (July 8) 1927.
4. Joslin, E. P.: Fat and the diabetic. New Eng. J. Med. 209:519 (Sept. 14) 1933.

1935 EARLY DIAGNOSIS CAMPAIGN

A tuberculosis patient recently called at the office of the State Association and reported that he was holding down a job and earning his living with not more than 40 per cent of his normal lung capacity. He had had a collapse of both lungs.

This one man's experience epitomizes the Early Diagnosis Campaign of 1935. Without modern weapons for the treatment of tuberculosis he probably would have been dead long ago. For him modern Sanatorium care with all that it implies in nursing and specific treatment, including the finest chest surgery was available. The Early Diagnosis Campaign will stress chest surgery. The Sanatorium at its best, the value of home care and social rehabilitation and other modern aids in the care and treatment of tuberculosis.

With the fiftieth anniversary of the opening of Trudeau Sanatorium being celebrated this year what a range of possibilities are afforded to Tuberculosis Associations in exploiting the triumphs of modern

treatment from "The Little Red" to an up-to-date Sanatorium!

Without any specific cure for tuberculosis, hundreds of thousands of men and women are now living and doing the world's work who would have been dead of tuberculosis had not modern weapons to fight this disease been employed. We may still find a cure for tuberculosis but until we do there is great hope in the program developed for this year's Early Diagnosis Campaign. Every Tuberculosis Association will find the Early Diagnosis Campaign of 1935 one of the most valuable aids in the promotion of all phases of its program.

One of the leading advertising agency representatives in the United States recently stated that Early Diagnosis Campaign supplies for 1935 were among the best pieces of copy ever produced by the National Tuberculosis Association and that they would compare favorably with the best efforts of any advertising agency in America.—Massachusetts Health Plan

MEDICAL PROGRESS

PROGRESS IN GASTRO-ENTEROLOGY FOR 1934

BY E S EMERY, JR., M D *

*(Continued from page 733, issue of April 18)**Treatment of Peptic Ulcer*

The literature on the treatment of peptic ulcer for the past year may be divided into two groups. It is becoming clearer that the standard forms of medical and surgical treatment give about the same results. This is evident as one obtains the reports from various clinics scattered throughout the world. In addition there has been a tendency to try various injection treatments. Numerous substances have been utilized but the reports show that all give about the same results, namely, relief from discomfort in a large proportion of the cases. Unfortunately this improvement usually persists for less than a year.

Nicolaysen states that the association of gastritis with peptic ulcer is less frequent in Norway than in Central Europe but more frequent in the United States. He considers that gastro-enterostomy is indicated in pyloric stenosis with large retention and dilatation of the stomach, irrespective of age. As a general rule, gastro-enterostomy should be the method after forty-five, in women and in cases of gastric ulcer the age for gastro-enterostomy can apparently be slightly lower without special danger of jejunal ulcer (this is not in accord with the reviewer's experience). In operative treatment indicated because of chronic symptoms, resistance to dietetic treatment and for economic reasons, he prefers resection in all patients under forty, especially in men, in duodenal ulcer and in high acid values and gastritis. With gastro-enterostomy mainly for older persons and resection for the younger, he considers resection a relatively safe operation. In technically difficult cases gastro-enterostomy is advised. He emphasizes the need for individualized treatment in each case of gastro-duodenal ulcer.

Jervell concludes from statistics on the end results of medical treatment that good results can be counted on in from forty to fifty per cent of cases treated. He urges early diagnosis and treatment but he says that even after symptoms of more than twenty years' duration medical treatment may be effective and niches apparently due to callous and penetrating ulcers not infrequently disappear under it. In after treatment, economic conditions play a part. Statistics are presented to show that there is no great danger of perforation in the further

course of gastro-duodenal ulcer, except in special cases in which there are painful ulcers on the anterior wall. The danger of hemorrhages is considered an indication for surgical treatment.

Church and Hinton have studied 671 cases of peptic ulcer, of which 114 were postoperative cases. They found that surgery cured thirty-seven per cent, improved twelve per cent, leaving fifty-one per cent that were unimproved.

Ryle and Walton discuss the failure of gastric surgery and give figures very similar to those obtained in American clinics. Ryle points out that "triumphs of surgery are more complete and lasting than those of medicine but by the general nature of the risks taken, the failures of surgery are more complete and more lasting." Walton has had a two per cent mortality following a posterior gastro-enterostomy for gastric ulcer and a 4.4 per cent mortality when the operation consisted of "wedge resection for lower curve ulcers." The incidence of gastro-jejunal ulcers has varied from fourteen to 39 per cent depending upon the type of operation and the type of case treated.

Udaondo stresses the necessity of patients continuing the medical régime. (It is consoling to some of us who have been preaching the chronic nature of the disease to find that this conception is now being generally recognized and that our present methods of treatment are sufficient to relieve but do not cure the disease.)

Steinberg discusses various exclusion operations. He undertook an experimental study to determine the relation of the distal part of the stomach to postoperative peptic ulcers. He experimented on forty-four dogs of which thirty-five survived long enough from which deductions could be made. He performed on one group of dogs a Finsterer operation with removal of the antrum of the stomach and stripped the mucous membrane off the pylorus. On dogs of another group he performed the Devine operation, leaving the antrum. When a surgical drainage of the duodenum was done on these animals those with the Devine operation developed ulcers, whereas the ones with the Finsterer operation did not. He believes, therefore, that whether the antrum is left intact is important in the production of hydrochloric acid.

P F Shapiro and B N Berg have studied the return of gastric acidity after subtotal gas

*Emery F S Jr.—Associate in Medicine Peter Bent Brigham Hospital Boston. For record and address of author see "This Week's Issue" page 791.

trectomy and double vagotomy on dogs. From this work they conclude that there is no experimental proof or convincing clinical evidence that subtotal gastrectomy is the operation of choice for the treatment of peptic ulcer.

Some of the newer methods of treatment are reported below.

Jones administered from ten to fifteen, sometimes twenty units of insulin subcutaneously fifteen minutes before eating, to twelve patients having recent peptic ulcers in the sense of Troitzky's theory. The action was not immediate but usually in from four to five days of insulin treatment there was a decrease in the pain, improvement in the subjective condition and an increase in weight which was coincident with a decrease of the vagotonus. In seven of the twelve patients of the first group pain disappeared in four days and the blood from the contents of the gastro intestinal tract in seven days, in spite of a distinct increase of the gastric secretion. In four persons the symptoms disappeared in from six to ten days and in one patient the feeling of complete well being appeared only after two weeks. Four of the patients were observed for nine, eleven, thirteen and fifteen months respectively. No recurrences were observed. In one patient there was a recurrence after five and a half months. The ulcer symptoms disappeared again after ten days of insulin treatment. The last group of patients experienced partial relief under the influence of from fourteen to sixteen days of insulin treatment. The pains, although considerably lessened, continued to appear from time to time especially in the periods of non digestion.

Van Kleeck, Butman and Schultz treated twenty cases of duodenal ulcer and two of gastric ulcer with intravenous injections of sodium citrate and sodium chloride. Symptomatic relief was produced after two to fifteen injections. The authors do not state, however, how long this relief lasted after the injections were stopped.

Bogendorfer resorted to intramuscular injections of a histidine preparation in patients with gastric and duodenal ulcer. He used a preparation 1 cc. of which contained 0.04 Gm of histidine monohydrochloride. The daily administration of 5 cc caused no undesirable complications. The author employed the treatment in about thirty cases. All other medicinal treatments were discontinued while the histidine preparation was administered. Pain disappeared rapidly and within a short time the patient could be put on an ordinary diet. The author gives brief clinical histories of three cases which indicate that the patients could be discharged from the clinic in two to three weeks.

Glaessner still continues to use injections of pepsin in the treatment of peptic ulcer. He

gives thirty injections either subcutaneously or intramuscularly, the first ten are increasing amounts of pepsin, the next ten are equal amounts and the last ten are decreasing amounts. This series of treatments may be repeated after six months, because about this time relapses occur occasionally. The pepsin therapy is combined with a dietary, and medicinal therapy. The diet is primarily lacto-vegetarian but some meats and fish are permissible. The author has employed the pepsin therapy in approximately 1,000 cases. The results were favorable in gastric and duodenal ulcers, esophageal ulcers were likewise improved but in jejunal ulcers the results were not so favorable.

Cunha reports his results with a compound known as synodal which is said to be a mixture of lipoproteins and emetin. He has observed twenty nine cases in over a year and twenty two have been treated within twelve months. All but two have had prompt relief from pain and so far it has not been necessary to give a second series of injections.

- Nicolaissen, K. Surgical therapy of gastric and duodenal ulcer. *Norsk. mag. f. laegevidensk.* 36:532 (May) 1934.
Jervell, A. Indications and results of medical treatment in chronic gastroduodenal ulcers. *Norsk. mag. f. laegevidensk.* 35:473 (May) 1934.
Church, R. and Hinton, J. W. A study of 471 cases of peptic ulcer with special analysis of 184 postoperated cases. *New York State J. Med.* 34:1078 (Dec.) 1934.
Ryle, J. A. Failures of gastric surgery. *Lancet.* 1:1890 (April) 1934.
Walton, A. J. Failures of gastric surgery. *Lancet.* 1:1893 (April) 1934.
Udando, C. B. Criticism of treatment of gastric-intestinal ulcer by medical management. *Proceso med.* 32:118 1 (Oct.) 1934.
Steinberg, M. E. Excision operation for duodenal ulcer. *Am. J. Surg.* 22:137 (Jan.) 1934.
Shapiro, P. P., and Berr, E. N. Return of gastric acidity after subtotal gastrectomy and double vagotomy. *Arch. Surg.* 22:140 1934.
Jones, C. R. Insulin treatment of peptic ulcer. *Am. J. Digest. Dis. & Nutrition.* 1:155 (April) 1934.
Butman, H. A., Schultz, L. J., and Van Kleeck, A. L. A new intravenous therapeutic agent for the control of peptic ulcer. *New York State J. Med.* 34:195 (March) 1934.
Bogendorfer, L. Treatment of gastric ulcer with histidine preparation. *Munch. med. Wchnschr.* 31:1276 (Aug.) 1934.
Glaessner, L. I. Organotherapy of peptic ulcer. *Wien. klin. Wchnschr.* 47:512 (April) 1934.
Cunha, P. Experiences with a new mode of treating peptic ulcer. *Am. J. Surg.* 22:219 (Feb.) 1934.

DUODENUM

Anatomy

R. Grégoire gives a very complete description of the duodenum which is well worth reading by anyone interested in this work.

Weinbrein discusses eleven cases of right sided inversion of the duodenum. Four of the patients were women ranging in age from forty to seventy. All of these were asthenic and three of them gave a history of recurrent attacks of diarrhea. One had gall stones. The others were men, ranging in age from twenty six to fifty four. Their habitus varied more than that of the women, one of them being six feet, two inches. The others, however, were of the hyposthenic type. Two of them complained of attacks of diarrhea. All the patients gave histories of dyspepsia which had persisted for con

siderable periods, and in two cases the history was suggestive of duodenal ulcer. In the one patient operated upon there was no sign of any ulcer, nor was there any sign of any ulcer roentgenographically. The existence of the duodenal abnormality was confirmed at the operation. Two of the patients had had the appendix removed. The author feels that the condition will be missed roentgenographically unless the duodenum is traced to the duodeno-jejunal junction. The appearances once seen on the screen cannot be mistaken. The inverted duodenum may return to normal when the patient is put into the supine or prone position. A complete examination of the full length of the duodenum during the course of a barium meal would doubtless reveal many more of these cases. In the case of an inverted duodenum the stomach is generally farther to the left of the spine than usual and the cap occupies a more transverse position. At the inferior flexure the third part, instead of extending to the left of the second part turns up to the right of the second part and goes on to join or form the duodeno-jejunal junction which likewise may be situated abnormally.

Grégoire R. Anatomy of the duodenum considered from the medical and surgical point of view. *Ann anat et path* 11 209 (Mar.) 1934

Weinbren M. and McGregor A. L. Right-sided duodenum inversion. Record of eleven cases. *Lancet* 1 280 (Feb.) 1934

Duodenal Fistulae

Sickels and Hudson point out that a biliary fistula communicating with the duodenum may be demonstrated by roentgen examination. They report two more cases in whom the bile ducts filled with barium as a result of such fistulae.

Bunch and Mayer were able to treat successfully a duodenal fistula which developed after operation by means of tube feedings. A blacksmith of fifty-two had been explored for a tender mass in the right upper quadrant. This was found to be due to a large solitary abscess of the right lobe of the liver. The day after operation a duodenal fistula developed. By passing a Rehfuß tube well beyond the region of the fistula and feeding the patient by this means, the fistula healed very satisfactorily.

Sickels T. N. and Hudson C. L. Demonstration of a spontaneous internal biliary fistula by roentgen examination. *Am J Roentgenol* 31 31 (Jan.) 1934

Bunch G. H. and Mayer O. B. Abscess of the liver complicated by duodenal fistula. *Southern M. J* 27 393 (May) 1934

Tumors of the Duodenum

Because carcinoma of the duodenum is considered a rare disease cases of this kind are usually published. As nothing essentially new has been given in these cases they have not been abstracted. Williamson, however, cites a case

of primary sarcoma of the duodenum in which the tumor started as a fibroma of the duodenum and underwent malignant degeneration. The diagnosis of a duodenal tumor was made during the course of an exploratory laparotomy. A preliminary posterior gastro-enterostomy was performed six months later in anticipation of extirpating the tumor. A partial duodenectomy was successfully performed about eleven months after the diagnosis and the patient had an uneventful recovery.

Williamson, C. S. Sarcoma of the duodenum treated by partial duodenectomy. *Western J Surg* 42 207 (April) 1934

Periduodenitis

Writers have previously advanced the idea of some relationship between the appendicular-cecal area and the pylorus. Kadrnka and Bardet believe that periduodenitis of appendicular origin is more frequent than is usually supposed. They state that it is more frequent than post-calculous or post-ulcerous periduodenitis and is usually found in young adults. So-called ulcerous periduodenitis must be considered only after the exclusion of disorders both near and far and especially appendicitis, even when apparently clinically cured. In such instances histologic evidence of the remains of an old appendicitis is necessary. Periduodenitis of appendicular origin generally involves the proximal part of the first portion of the duodenum and the lesser curvature of the bulb. It is also frequently localized at the level of the third part in the region of the neck of the mesentery, thus producing a mesocolic form which is characterized by nonreducible stenosis. In practice, appendicular periduodenitis forms two groups that in which the dyspepsia is accompanied by the appendicular syndrome and that in which it is not. In the first form roentgenography is largely responsible for the pathological diagnosis. In the second group clinical diagnosis is especially difficult. The authors feel that treatment should be directed both toward operative freeing of the duodenal adhesions and removal of the primary focus, i.e., the appendix. Although good results sometimes follow appendectomy alone, a second operation is often necessary and it seems desirable to perform the two procedures at the same time rather than run the risk of a second operation. They conclude that in view of the numerous early and late complications of appendicitis it is wise to remove this organ at the first sign of involvement and it is better to remove a normal appendix than chance the complications of which periduodenitis is only one.

B. R. Kirklin gives the roentgenographic signs of duodenitis as, (1) increasing irritability resulting in an intense spasticity and hypermotility, the bulbar shadow appears less dense than in a frank ulcer, (2) the mucosal pattern

is coarsely and irregularly reticular, (3) the absence of an ulcer crater and (4) the absence of gastric retention.

- Kadraka, E. and Bardat P: Périduodénites d'origine appendiculaire. Arch. des Maladies de l'Appareil Digestif. 24 254 (April) 1934
Kirklin, E. R.: Duodenitis and its roentgenographical characteristics. Am. Jour. Roentgenol. 31 581 (May) 1934

Duodenal Diverticula

There have been numerous articles about diverticula of the various parts of the gastro intestinal tract most of which do not contribute anything to our knowledge. However, Schmidt and Guttman point out a fact that is worth remembering, namely, that jejunal diverticula may suggest gastric disease if the jejunum should overlie the stomach.

On the basis of seventeen case histories Frenzel Beyme explains the connections between duodenal diverticula and pancreatitis. The characteristic pain on the left side or in the back the pancreatic stool and the increased or greatly fluctuating diastase values are the most significant of the symptoms indicating pancreatic involvement. Increased blood sugar content and the enlargement of the space of the head of the pancreas may indicate a pancreatic involvement, but they are frequently absent. A negative roentgenologic examination does not definitely exclude impairment of the pancreas. The author thinks that in extensive destruction of the pancreas there is usually a gastric subacidity which requires further investigation on a larger amount of material. In case of duodenal diverticulum there exist nearly always atypical intestinal disorders (heartburn, nausea, vomiting and a sensation of pressure in the gastric region). If the pancreas is involved from the beginning which is the case when the duodenal diverticulum is located at the duodenal papilla, typical pancreatic symptoms are generally disclosed by the history. In these cases the course is usually rather severe and there is danger of acute necrosis of the pancreas. The duodenal diverticulum causes disturbances only when it retains substances and subsequently becomes inflamed. This is the case when the pedicle connecting the duodenal canal with the diverticulum is rather narrow. If the pancreas is in the normal position it becomes involved in the disturbances only if the diverticulum is on the concave side of the duodenum.

- Schmidt, E. A. and Guttman P. H.: Multiple diverticula of the jejunum and duodenum simulating gastric diverticula and complicated by cholelithiasis. Am. J. Roentgenol. 31 286 (Feb.) 1934.
Frenzel Beyme: Duodenal diverticulum and pancreatitis. Med. Klin. 30 1198 (Sept.) 1934

LIVER

For a pretty complete and carefully compiled description of the relation of the liver to the metabolism of carbohydrates and fats, one should read the three lectures delivered by G. H. Best

for the University of London at the University College. He discusses in order the methods of approach to the problem of the liver in relation to carbohydrate metabolism and deposition of liver fat. The lectures are too comprehensive to abstract satisfactorily.

- Best, G. H.: The role of the liver in metabolism of carbohydrate and fat. Lancet. 1 1186 (June) 1934

Functional Tests of the Liver

In recent years there has been much work devoted to an attempt to find tests which will be of clinical value in determining the condition of the liver. In view of the large number of functions which the liver performs it is difficult to understand how any single test can be of much value.

This has been emphasized by the work of F. C. Mann. He has removed varying amounts of the liver up to total extirpation and found that very slight impairment of the physiologic functions resulted, even if only a minimal amount of the liver was left, which was sufficient to maintain life. Therefore, with such a large factor of safety, the liver may be badly diseased before any functional test will give evidence of impairment. No attempt has been made to abstract the numerous articles on liver function tests inasmuch as they have contributed little of value during the past year.

- Mann, F. C.: Hepatic function in relation to hepatic pathology: Experimental observations. Ann. Int. Med. 8 432 (Oct.) 1934.

The Bile

In the course of roentgenologic studies on the small intestine, Bayer noted that in cholestasis the roentgenograms of the small intestine show certain characteristic changes in motility and in the shape of the intestinal loops. Passage of the intestinal contents is retarded and the intestinal loops are dilated which indicates that the hepatobiliary diseases influence the peristalsis and the tonus of the small intestine. In an attempt to explain this behavior of the small intestine during hepatobiliary disorders, he points out that the bile has an inhibiting influence on the smooth muscles and that, if bile enters the blood, the tonus and the peristalsis are reduced.

Sackey, Johnston and Ravdin have studied the fate of bilirubin in the small intestine. Since there was no loss of bilirubin from the jejunal loop and no loss of bilirubin when pigment was incubated with the juice from the loop segment or juice from the entire small intestine they conclude that the intestinal juice alone has no effect in converting bilirubin to urobilin during a period of two hours and that in the jejunal loop there was no absorption of pigment and no conversion to urobilin. The experiments on dogs showing loss of pigment in the entire intestinal tract suggest that in some

place other than the jejunal portion of the intestine, the combined activity of intestinal contents and intestinal cells does not affect the bilirubin in the intestine. Whether the loss of bile pigment under such circumstances is due entirely to conversion, to conversion and absorption or to absorption of bilirubin as such remains to be seen.

Jones and Laing have found that if dogs were fed with large quantities of viosterol, there was no increase in the calcium content of the bile and therefore there is no reason to feel that large amounts of Vitamin D may contribute to the formation of gall stones.

Dragstedt and Woodbury have shown that bile is not essential for the secretion of pancreatic juice. Food in the absence of bile promotes the usual flow of pancreatic juice. Bile salts cannot be considered essential either for the activation of the specific pancreatic stimulant or for its passage into the blood in effective form. (These results obtained from working on dogs are in contradiction to the findings of Mellenby when he studied the effect of bile on pancreatic secretion in cats.)

Przyr L. Atcny of small intestine a symptom valuable in the diagnosis of disease of the hepato biliary system. *Deutsche med. Wchnschr.* 60 1270 (Oct.) 1934.

Saakev M. S. Johnston C. J. and Ravdin I. S. Fate of bilirubin in small intestine. *J. Exper. Med.* 60 189 (Aug.) 1934.

Jones K. K. and Laing G. H. The effect of viosterol on the calcium content of the dog's bile. *Am. J. Physiol.* 110 471 (Dec.) 1934.

Dragstedt, L. R. and Woodbury R. A. The relation of bile to the secretion of pancreatic juice. *Am. J. Physiol.* 107 584 1934.

GALL BLADDER

Ivy and Bergh have written in the *Journal of the American Medical Association* on the applied physiology of the extrahepatic biliary tract, which is an excellent summary of our knowledge of what is known about the physiology of the gall bladder.

Ravdin and others show that extensive changes occur in the concentration of bile in various surgical lesions of the biliary tract. They have found that the changes which normally take place in the bile as it enters the gall bladder are very considerable. They believe that the gall bladder plays an important rôle in physiological economy and should not be removed without definite evidence that its function is impaired. When the gall bladder becomes damaged, either by infection or by obstruction of the extrahepatic duct, profound changes occur in the chemical composition of the hepatic bile.

Heckmann discusses the part played by the enterohepatic circulation in digestion and in detoxication and the function of the gall bladder in the enterohepatic circulation. He concludes that with the exception of cholesterol and lecithin all biliary substances take part in the enterohepatic circulation. This signifies that the cells

of the liver have to replace only those quantities of bile that are lost (elimination with feces, etc.) whereas the largest portion of the biliary constituents are carried to the liver with the portal blood and merely have to be excreted in the bile passages. In case of destruction of this circulation, there is a considerable reduction in the biliary excretion. Such a change in the enterohepatic circulation takes place in diseases of the liver, such as cirrhosis, in which, as a result of the overflow of the enterohepatic circulation, large amounts of substances contained therein enter into the greater circulation. The gall bladder has the capacity to store and concentrate all the circulating bile. It acts as a regulator of the constantly circulating bile from the liver to the intestines and back to the liver again, and its function is to adapt the circulating bile to the requirements of the digestion. The author points out that the exclusion of the protective organ favors the development of hepatic disorders.

Graham and Mackey have studied the result of cholecystectomy in the absence of gall stones. In the absence of severe pain the beneficial results to be obtained by cholecystectomy in cases of a stoneless gall bladder are likely to be unsatisfactory in approximately forty per cent. They believe at present there is little justification for the subjection to operation of patients who have only the beginnings of cholecystic disease, unless one is interested in the prevention of complications. In order to arrive at a satisfactory incrimination of the gall bladder, it is necessary to examine the patient thoroughly with reference to the possibility of other sources of the complaints. Even after the presence of cholecystic disease is demonstrated in the anatomic sense, it is still difficult to satisfy oneself that the function of the organ is sufficiently disturbed by those pathologic changes to cause the symptoms of which the patient complains.

Melchior states that the findings at the time of operation of bile in the peritoneal cavity without a visible perforation of the gall bladder or the bile tracts, suggest three possibilities: (1) actual absence of perforation, (2) a perforation that has taken place but has become sealed and could not be detected as such, and (3) an existing perforation not noticed because of the difficulty of exposure, its true character being revealed, as a rule, at necropsy. A distinction, therefore, must be made between the clinical concept of bile peritonitis without visible perforation and its narrower anatomico-pathologic concept. To the latter group belong the cases that are the result of a simultaneous effect of an infection and stasis on the walls of the gall bladder and the biliary tracts. Under such conditions the bile may diffuse through the gall bladder wall without the existence of an actual perforation. There is clinical and experimental

proof that regurgitation of the pancreatic secretion into the bile tract may likewise bring about an abnormal transfusion of bile. Under certain pathologic conditions such as obstruction of the cystic or the common duct and acute inflammation of the wall of the gall bladder, the latter was seen by the author to "sweat" bile. The author reports two cases in both of which there was found at operation a severe bile peritonitis without visible perforation. Both were in stances of chronic choledocholithiasis with actual supervening partial necrosis of the liver.

Saralegui advocates the injection of 20 to 30 cc of thorotrast of Heyden in the drainage tube after cholecystectomy. By use of the fluoroscopic screen he believes that the presence or absence of hepatic stone may be satisfactorily observed.

Vastine reports two cases of diverticulum of the gall bladder, one of which contained a stone. He suggests that if the diverticulum overlies the kidney this may be misinterpreted as a renal calculus.

- Ivy, A. C. and Bergh, G. H. The applied physiology of the extrahepatic biliary tract. *J. A. M. A.* 193:1500 (Nov.) 1934.
- Hardin, L. S. Riley, C.; Johnston, C. G. and Morrison, P. J. Studies in biliary tract diseases. *J. A. M. A.* 105:1564 (Nov.) 1934.
- Hickmann, K. Function of the gall bladder as regulator of entero-hepatic circulation and as detoxicating organ. *Klin. Wchnschr.* 13:750 (May) 1934.
- Graham, E. A. and Mackay, W. A. A consideration of the stoneless gall bladder. *J. A. M. A.* 103:1497 (Nov.) 1934.
- Mehleber, E. Bile peritonitis without visible perforation. *Deutsche Zeitschr. f. Chir.* 243:458 (J. no.) 1934.
- Saralegui, J. A. Cholangiography. *Am. J. Roentgenol.* 32:167 (Aug.) 1934.
- Vastine, J. H. Diverticulum of the gall bladder. *Am. J. Roentgenol.* 31:693 (May) 1934.

THE PANCREAS

Grandclande and his associates review the history of pancreatic cysts and report a case which they studied. This is quite a complete article in which they discuss the etiology, frequency and relation of the condition to age, sex, the predisposing factors, classification, gross and microscopic anatomy and finally they suggest a classification based on morphology.

Mikkelsen discusses severe acute pancreatitis. A review of the literature shows that its treatment remains almost exclusively operative and that the results of such treatment still show an average mortality of fifty per cent. The author points out that there is no anatomic basis for an operative attack on the pancreas. The pancreas has no true capsule in the anatomic sense of the term. The structure that is divided on incision into the pancreas is the peritoneum covering the organ and an incision through this peritoneal covering cannot relieve the secretory tension. The pancreas is made up of many small lobules that are separated by thin septa of connective tissue each inclosing an individual

lobule. In order to relieve the pressure tension in the pancreas it would be necessary to divide the thin layer of connective tissue covering each lobule and that would not be feasible. Besides, these interlobular connective tissue septa are intimately connected with the glandular tissue, which is always affected at the same time. An operation of this kind is thus apt to cause an increase rather than a reduction in the necrosis and intoxication. The theoretical basis for an operation on the bile ducts is more logical but the systematic employment of such operative measures in recent years has not lowered the case mortality decidedly. Recently a few surgeons have turned to a more conservative treatment, some of them postponing the operation until the "shock stage" is passed, others waiting until all acute symptoms have subsided, after which an operation is performed for gall stones when such are found to constitute the underlying cause of the acute pancreatitis. Operation is performed also if the process goes on to abscess or cyst formation. During the last eight years they have treated conservatively thirty-nine patients with severe acute disorders of the pancreas. Twenty cases were extremely ill, their general condition being very poor. Three of the twenty patients died and the remaining nineteen were gravely ill but not actually shocked. Operation was performed only in cases in which gall stones were ascertained and not until from one to three weeks after the acute symptoms had subsided. The treatment adopted by the author consists of a supply of fluid by mouth, skin and vein and the use of stimulants and peristaltics. The mortality with this conservative treatment was 75 per cent.

Zelikson has found in a study of thirty-five cases that determination of ferments obtained with the aid of the Euborn duodenal tube is entirely unreliable. The determination of amylase in the urine in thirty-three cases likewise proved to be of little diagnostic value. The author examined the lipase and amylase blood content in ninety-two cases. Determination of the blood lipase after the method of Rhon depends upon the fact that in patients with pancreatic disease the atoxyl fails to activate the lipase, while in the normal organism its effect is to activate the ferment. The reliability of the Rhon test for lipase and of the Wohlgemuth test for the amylase was verified in thirty-three cases either at operation or at necropsy. In a group of eight cases of proved pancreatic lesions, there were four instances of a negative Rhon test. The author concludes that the reaction of Rhon is of value in functional diagnosis of pancreatic disease particularly in the early stages. The reaction may be negative even in extensive involvement of the organ shortly before death.

Hyperinsulinism

Hyperinsulinism is being recognized more and more frequently. Most of the articles that have been recently published emphasize the frequency and the various symptoms that may be produced by this condition, but have not added anything essentially new to the early reports.

Harris has written an article for the *American Journal of Digestive Diseases* which covers most of the work in this field and the reader is referred to the article for further information.

- Grandclaude C, Dellanoy E and Driessens J. Cysts of the pancreas. *Ann. d'anat. path.* 11 433 (May) 1934.
 Mikkelsen O. Acute pancreatitis. *Acta chir. Scandinav.* 75 273 (Sept.) 1934.
 Zelikson A. A. Functional diagnosis of diseases of the pancreas by determination of lipase and amylase content of the blood. *Sovet. vrach gaz.* No 12 908 (June) 1934.
 Harris Seale. Clinical types of hyperinsulinism. *Am J Digest Dis & Nutrition.* 1 562 1934.

JEJUNUM

Quigley, Highstone and Ivy have made a Thiry-Vella loop of intestine in the jejunum and studied its propulsive activity by observing the rate at which a bolus was propelled through the loop. They found that the rate was practically constant at 15 cm per minute. Disuse of the intestine led to marked prolongation of the propulsive time but this was readily overcome by the intestinal or intravenous injection of hypertonic saline solution.

Longacre reports two cases of so-called duodenojejunal hernias of Treitz. He had an opportunity to work out carefully the anatomical details. As a result of this study he concludes that the condition is due to a congenital abnormality as recently suggested by Andrews, Eisler, Fischer and Bender. This is opposed to the theory of Treitz that the condition is due to a widening and deepening of one of the many pre-formed fossae about the duodenojejunal flexure as a result of the pressure and peristaltic movement of the small intestine.

- Quigley J P, Highstone W H and Ivy A C. A study of the propulsive activity of a Thiry-Vella loop of intestine. *Am J Physiol.* 108 151 (Apr.) 1934.
 Longacre J J. Mesentericoparietal hernia. *Surg Gyn & Obst.* 59 165 (Aug.) 1934.

Parasitology of Jejunum

Ronka presents an interesting case of infection with *Dibothryocephalus latum* in which, though the patient harbored the fish tapeworm in her intestine, she suffered no ill effects from the parasite. She presented a variety of clinical manifestations without anemia. The functional disorders were referable to the alimentary tract.

Gibbes writes on the symptoms produced by hookworm infections which are suggestive of duodenal ulcer. The patients have hunger pains but they do not have the pains with the unflinching, clock-like regularity of true ulcer. The pain seems to be located quite frequently in the upper part of the abdomen. In the pa-

tient having intestinal parasites the symptoms continue without periods of relief usually experienced by ulcer patients. An eosinophilia should always suggest the possibility of an intestinal parasite and is often the lead that elicits a correct diagnosis. The number of eosinophils vary in these diseases from two per cent to as high as seventeen per cent in the author's series, though much higher counts have been reported. The roentgen observations of the stomach and duodenum are to some extent similar in both duodenal ulcer and in parasitic disease of the intestinal tract. The stomach is irritable and tends to empty with abnormal rapidity in both conditions. The pylorus is spastic and the duodenal cap is abnormal. However, in duodenal ulcer the duodenal deformity persists in spite of every effort to overcome it, while the duodenal deformity resulting from parasitic disease can be made to disappear under fluoroscopic manipulation. The back and forth, churning movement in the duodenum associated with hookworm disease and described by Henderson, is an important diagnostic criterion. (Although hookworms are rarely seen in this part of the country, the fact that parasites can simulate the symptoms of various diseases of the intestinal tract should be kept in mind. The reviewer has seen one case which suffered from symptoms suggestive of duodenal ulcer and was promptly relieved after the passage of an ascaris.)

Kendrick has studied the length of life and the rate of loss from the body of hookworms. He infected twenty volunteers with *Ankylostoma* injections and five volunteers with *Necator* injections. The average period between application of larvae to the skin and the appearance of ova in the stools averaged fifty-three days. The patients' feces were studied for ova and it was found that the number of ova increased for twelve to eighteen months. This was followed by a decline of fifty per cent to seventy per cent of egg production in a period of from three to six months. The maximum period from the date of injection to the disappearance of ova in the feces of one *Ankylostoma* patient was eighty-one months. The average for three patients was seventy-six months and in the only *Necator* case under observation throughout the course of infection the egg count was positive for only twelve months, but ova were detected by direct centrifugal flotation method sixty-four months after the date of injection.

- Ronka E K F. Infestation with *Diphyllobothrium latum*. Fish tapeworm. *N Eng J Med.* 210 582 (Mar.) 1934.
 Gibbes G H. Symptoms suggestive of duodenal ulcer arising from hookworm infection. *J South Carolina M A.* 30 102 (May) 1934.
 Kendrick J F. The length of life and the rate of loss of the hookworms *Ankylostoma duodenale* and *Necator americanus*. *Am J Trop Med.* 14 353 (Sept.) 1934.

ILEUM

There have been several reports of fibrotic changes occurring in the ileum and occasionally

involving the ileocecal region Kantor reports the data obtained from six cases. Pain and dilatation were present in all six patients. Fever occurred at some time in five. All were operated upon and except for one who died from a perforation found at the time of operation, the others were well from one to five years after resection of the involved area. He summarizes the chief roentgenoscopic changes in the ileum as follows (a) filling defect just proximal to the cecum (b) abnormality in contour of the last filled loop of ileum, (c) dilatation of ileal loops just proximal to the lesion and (d) a narrow string of barium at the site of the actual lesion

IL G Bell reports a case of chronic cicatrizing enteritis This was in a woman twenty eight years old whose complaints were weakness breathlessness on exertion, palpitation, pallor and epigastric pain Physical examination showed a mass in the left lower quadrant and a rather marked secondary anemia. Operation revealed a lesion in the ileum about sixteen inches from the ileocecal valve causing a partial obstruction with a resulting dilated and hypertrophied bowel above it The mesentery was edematous and the lymph nodes were enlarged and hyperplastic. Pathologic examination revealed a subacute and chronic inflammatory reaction.

Donchess and Warren, using the same terminology of chronic cicatrizing enteritis, report the case of a woman sixty two years old who suffered from attacks of abdominal cramps constipation, and flatulency The x ray diagnosis of carcinoma of the hepatic flexure was made After removal the specimen showed cicatrization of the terminal ileum The cecum and ascending colon showed evidence of a long standing fibrotic process The mucosa was ulcerated The authors were unable to suggest any etiological factors.

Jackman in the *British Journal of Surgery*, speaks of a hypertrophic enteritis occurring in two females, one thirty seven years old and the other fifty five years old. Both were operated upon for supposed acute appendicitis, both showed a markedly congested and hypertrophic terminal ileum. The author shows microphotographs of the histological condition and gives some excellent pictures of the gross appearance.

(Crohn was the first to direct the attention of the profession to this condition and gave it the term "regional ileitis" However, since the cause of the condition is not known and the reports coming out since that time suggest that the pathologic process may occur in almost any portion of the intestinal tract, the term chronic cicatrizing enteritis would seem to be a better one. As yet no one has been able to explain the cause of this condition. In most instances cures have been reported after resection of the infected part yet this does not always occur as

illustrated by a case seen by the reviewer, who has had three radical resections without cure)

- Kantor, J. A.: *Regional (terminal) ileitis, its roentgen diagnosis*. J. A. M. A. 107:2518 (Dec.) 1934
Bell, H. G.: *Chronic cicatrizing enteritis*. California and West. Med. 41:1223 (Oct.) 1934.
Donchess, J. C., and Warren, S.: *Chronic cicatrizing enteritis*. Arch. Path. 15:122 (July) 1934
Jackman, W. A.: *Localized hypertrophic enteritis as a cause of intestinal obstruction*. Brit. J. Surg. 21:7 (July) 1934

OMENTUM

Ransom and Samson report an angiosarcoma of the greater omentum which resulted in a massive intra-abdominal hemorrhage. From a study of the literature they were able to find seventy five cases of verified primary malignancy They give a table listing the chief points for all these seventy five cases, including the type of cell tumor Most of the results have been poor due to the great tendency to recurrence

- Ransom, H. K. and Samson, F. C.: *Malignant tumors of the greater omentum*. Ann. Surg. 108:522 (Sept.) 1934

THE DIARRHEAS

The Morro treatment of diarrhea by the apple diet continues to be used in European Clinics Baumann and Forschner Böke state that although the favorable influence of the apple and banana diet on diarrheal disturbances has been definitely established, the mode of action is still in dispute Investigations on the latter problem convinced them that the pectins particularly because of their great swelling capacity are the most important therapeutic factor They observed that the swollen, voluminous intestinal contents present in the case of the apple and banana diet stimulate the peristalsis and accelerate the passage and thus counteract the stagnation of the ingesta, which results from the diarrhea. By the administration of pure pectins, it could be shown that they increase the peristalsis and also have an absorptive action The fact that the diet provides almost exclusively carbohydrates and that it is practically free from fats and proteins should likewise not be overlooked The acidification of the gastric contents by the malic acid may be of some influence in that it increases the bactericidal effects, but that this factor is only of minor influence was proved by experiments with neutralized apple and banana diets. The tannin contained in apples and bananas is likewise of only minor part in the therapeutic action of apple and banana diets as proved by buffer curves The authors further report studies on the stools in the apple and banana diet. They determine the pH, the buffering value, the water, fat and mineral contents and the organic acids and they discuss the results of these tests They conclude that in older nurslings and in young children the banana diet gives better results than the apple diet.

Schachter has written a rather complete article on the fruit diet in diarrhea in children. He states that he has recently used raw pears and apricots in a case of dysenteriform diarrhea in a girl thirteen months of age with equally good results. He believes that the mechanism of the action of all these fruits is probably the same and that it is due to the organic acids of the fruits.

Roberts reports a case of what he called celiac disease in adults by putting the patient on a sugar-less milk, banana and meat diet. The ordinary forms of carbohydrate were absent. Although such carbohydrates themselves are absorbed and were at no time found undigested in the feces they appear to arouse the symptoms of celiac disease, including interference with calcium metabolism and resulting tetany and impairment of the utilization of other food-stuffs. The banana is helpful in celiac disease. Its carbohydrate can be used, it seems indefinitely, without giving rise to the symptoms of the complaint, which is not the case with other carbohydrates. With the banana the proportion of carbohydrate, protein and fat can be balanced satisfactorily and utilized. The diet when established has a high fat content, most of which is absorbed. In a research on another patient passing large fatty stools, it was found that milk fat was more easily absorbed than other forms of fat. When this patient recovered fifteen years ago on a meat diet it was then possible to use ordinary foods beginning with bread and butter in moderation. The same is found in other cases of this disease on the regimen described by the author. It is important, however, not to try such an addition until after at least six months of health on the special diet.

Thaysen reports on some cases of idiopathic steatorrhea which he has seen. In the first case the symptoms of the disorder set in nine years earlier. In the second, the disturbance dated back to childhood. The first patient was a man, aged thirty-two, and the second a woman, aged twenty-four. Both patients had been treated at home and hospitalized at various times. Abdominal tuberculosis had been suspected. The cases were treated under the diagnoses of Addison's Disease, periglandular insufficiency and anemia. The author states that while there was marked pigmentation of the skin, neither of the patients had typical Addison's Disease. Symptoms of endocrinopathy and avitaminosis appeared together. In the first case there were pronounced tetany and pigmentation, in the second dwarfism of the hypophyseal type, glossitis, pigmentation, hemorrhages in the skin and osteoporosis and latent tetany. The anemia in idiopathic steatorrhea may be so marked as to dominate the entire picture and the two attacks of grave anemia which occurred in both

cases, diverted attention from the steatorrhea. The diagnosis of idiopathic steatorrhea is not confirmed by the demonstration of an excess of fat in the stools. The presence of this abnormality without jaundice or signs of occlusion of the choledochus calls for examination of the blood sugar curve after the administration of dextrose. If the blood sugar curve is low the diagnosis of idiopathic steatorrhea must be made, since neither pancreatogenous steatorrhea nor steatorrhea in intestinal amyloidosis nor intestinal tuberculosis is accompanied by low blood sugar.

- Baumann T and Forschner-Böke H. Investigations on therapeutic action of apple and banana diet. *Ztschr f Kinderh.* 56 514 (Sept.) 1934
 Schachter M. Fruit diet in diarrhea in children. *Arch de med d. enf.* 37 139 (Mar.) 1934
 Roberts C G. Coeliac disease in an adult treated with sugar less milk bananas and meat. *Lancet.* 1 130 (Jan.) 1934
 Thaysen T E H. Two cases of idiopathic steatorrhea with special consideration of diagnosis and occurrence of symptoms of endocrinopathy and avitaminosis. *Hospitaltid.* 77 1033, 1934

The Dysenteries, Other Than Amebic

Kellogg discusses the classification of acute dysentery other than the amebic, mentioning the various organisms that have been held responsible for different outbreaks. He points out that "the entire group is closely related and of complex antigenic structure, resulting in cross agglutination reactions to a confusing extent." He believes that interest in amebic dysentery is resulting in undue emphasis on this form of diarrhea in laboratories and that some reports of amebic dysentery emanate from laboratories whose technicians are not properly grounded in the protozoology of the intestinal tract.

Mackie made a cultural and serological study of eighty-three cases of ulcerative colitis for evidence of bacillary infection. Forty-two per cent showed definite evidence of bacillary dysentery and the dysentery bacillus was actually recovered in 20.4 per cent. Similar evidence of infection was found in only nine of 102 control cases. The authors therefore believe there is evidence that bacillary dysentery may be the etiological agent in certain cases of so-called idiopathic ulcerative colitis.

Alexander and Wu give incidents of neurogenic symptoms arising from the brain and spinal cord in patients with amebic and bacillary dysenteries. Some are apparently due to avitaminosis, some may be due to cord changes similar to what occurs in primary anemia without evidence of anemia and in some there is no explanation for the symptoms.

Lauda writes on the treatment of enteritis caused by lamblia in the stool of a patient with an enterocolitis which had been refractory to diet, and medicinal treatment. Lamblia was recovered. By means of a duodenal tube he introduced into the duodenum of the patient a so-

lution of 0.3 Gm. neoarsphenamine in 200 cc. of water. The diarrhea ceased at once and two days later the stools were of normal color and consistency. On the third day the stools were entirely free from the organisms but in spite of after treatment with acetarsone they reappeared later. However, there was no relapse of the clinical symptoms. To destroy the organisms the administration of neoarsphenamine by means of the duodenal tube was repeated several times and was followed by renewed treatment with acetarsone. As a result of these measures they disappeared completely within ten days and the author states that ten weeks after the treatment the patient was free from symptoms, the stools were normal and repeated search for lamblia gave negative results. He points out that the literature gives other cases in which arsenic preparations produced such favorable results but that there are also cases in which this therapy failed completely. However, he thinks that it should always be tried. To avoid relapses the patients should be warned that dietary mistakes and colds are likely to cause recurrences.

- Kellogg, W. H.: Bacillary dysentery. *California & West M.* 41: 226 (Nov.) 1924.
Mackie, T. T.: Ulcerative colitis. The relationship between bacillary dysentery and ulcerative colitis. *Southern M. J.* 27: 193 (June) 1924.
Alexander, L., and Wu, T. T.: Symptomatic involvement of the nervous system in different forms of dysentery. *Chin. M. J.* 43: 13 (Feb.) 1924.
Lauda, E.: Therapy of enteritis caused by lamblia. *Wien. klin. Wchnschr.* 47: 1122 (Feb.) 1924.

Amebic Dysentery

As previously stated the Chicago epidemic of amebic dysentery has aroused much interest in the disease and many articles have been written on the subject. Only a few of these have been abstracted. Melenev has reported on the pathology of amebiasis and states that the lesions are the result of its mechanical invasion and toxic action on the tissues of the host. The distribution of amebic lesions in the colon may be either general or localized. Localized lesions are found most frequently in places where stasis normally occurs. In their order of frequency these places are the cecum, the ascending colon, rectum, the sigmoid, the appendix and the splenic and hepatic flexures. In general the most severe lesions tend to occur in the cecum but may be found as low as the sigmoid. In addition to the colon the terminal portion of the ileum is occasionally found to be involved. It is probable that such involvement is always secondary to lesions in the colon. Liver abscess secondary to intestinal lesions is a common complication. Extension of the liver abscess through the diaphragm into the lung is common with development of a secondary lung abscess surrounded by pneumonia. Extension into the pleural and pericardial cavities also occurs. Amebic abscess of the brain has been reported, usually secondary to liver and lung abscesses.

Magath states that the laboratory diagnosis of amebiasis requires special knowledge and skill and should not be attempted except by those adequately trained. The direct smear method is adequate in the hands of those properly trained but, if doubt exists, one should resort to fixed and stained preparations. Culture methods should be used in laboratories qualified to identify amebae but for the usual routine cultures are not necessary, provided the examiner knows how to make proper direct examinations. Until the complement fixation method is simplified it is not suitable for routine tests.

Reed and Johnston as the result of a study on one thousand inmates at San Quentin Penitentiary, have reported good results with carbarbonyl in the treatment of amebic dysentery. They also report a satisfactory method of diagnosis by the following means: thin smears were made from fresh stool specimens, without drying, the slide was immersed in Schaudinn's fixing fluid where it remained until the next morning; it was then placed for ten minutes in seventy per cent alcohol tinged to a wine color with compound iodine solution, after this the slide was placed in bottles of seventy per cent alcohol and sent by post to their laboratory where the iron hematoxylin staining method as described by James was completed.

Anderson and Reed discuss the untoward effects of anti-amebic drugs. They point out that emetin hydrochloride is toxic for most mammals including man, in total doses of ten to twenty five mgm. per kilogram of weight. The heart muscle bears the burden of the toxic effect. The maximal safe total dose of emetine hydrochloride is ten mgm. per kilogram of weight in patients with an amebic hepatitis and free from heart damage. Acetarsone may exhibit toxic manifestations in one of every six cases treated. The case of a patient showing intolerance to five Gm. of this agent taken over a period of twenty-eight days is reported. Acetarsone, in the authors' opinion, is too toxic for routine clinical use, and arsenicals should not be given in the presence of a hepatitis. Slight gastric distress has been noted also but no evidence of damage to the kidneys, optic nerve, skin or other tissues has been observed. Liver damage has been reported elsewhere from the use of chiniofon but the authors have abandoned this agent because of its relative inactivity as an amebicide using viofilm in preference to chiniofon. The drug cannot be used rectally because of local irritation. Since the soluble hydrochloride of viofilm causes local effects on mucous membranes, it is possible that a gastric hyperacidity may be responsible for the distress experienced. Heptylresorcinol irritates the mucous membranes of the gastroenteric tract and is not to be recommended as an amebicide until more adequate data on its efficiency are available.

Hemenway has used the De Rivas's treatment in twenty cases of dysentery, amebic and bacillary, of which one was unimproved and nineteen cured. All stools contained blood and mucus. The treatment for the eradication of parasites of the large intestine is recommended for amebic and balantidic dysentery, trichomonas, oxyuris and other protozoa and metazoic disturbances of the large intestine. The patient lies on the right side with hips elevated. An ordinary stomach tube is used for insertion into the rectum. This is connected with a glass Y tube, one end of which leads to an enema vessel and the other to a pail. There are stopcocks on both ends. The rectal tube is inserted slowly and sufficient fluid is admitted to balloon out the intestine so that the tube may be pushed up into the ascending and transverse colon. Then a rectal thermometer is inserted. The enema vessel contains 5000 cc of a 1-5000 solution of copper sulphate at a temperature of from fifty-two to fifty-five degrees (C) which flows into the colon at the rate of 100 to 150 cc a minute. A patient may be given one to two liters. When the patient complains of pain the enema tube is closed off that to the pail is opened and some of the solution is drained off from the intestine. After this the treatment may be continued and at its close the patient holds it as long as he can. The treatment is given three times a week for two months and then once a week for a month.

- Moloney, H. E. The pathology of amebiasis. *J. A. M. A.* 103 1213 (Oct.) 1934.
 Magath, T. B. The laboratory diagnosis of amebiasis. *J. A. M. A.* 103 1218 (Oct.) 1934.
 Reed, A. C. and Johnston, H. G. Amebiasis among one thousand prisoners. *Am. J. Trop. Med.* 14 181 (Mar.) 1934.
 Anderson, H. H. and Reed, A. C. Untoward effects of anti-amebic drugs. *Am. J. Trop. Med.* 14 269 (May) 1934.
 Hemenway, R. V. Results of De Rivas treatment in dysentery cases. *Chinese M. J.* 48 337 (April) 1934.

Idiopathic Ulcerative Colitis

Spriggs summarizes his experiences with chronic ulceration of the colon. He found the incidence to be about five in one thousand admissions. Of forty-eight consecutive cases investigated and observed in detail thirteen were due to amebiasis. After discussing the symptoms and physical signs of ulcerative colitis, he reports on the value of various kinds of treatment. For the milder cases he advises general hygienic care with a fairly bland diet. He believes that intestinal douching with normal saline is frequently a useful procedure. He did not find that vaccine treatment proved to be beneficial.

Banks and Bargin have found that relapses in chronic ulcerative colitis are most commonly associated with respiratory infection. This was true in fifty-seven per cent of all cases. Next in importance came over-exertion and emotional upsets of which there was an incidence of thirteen per cent. Any condition causing ir-

ritability of the tract may be responsible for a relapse. This occurred in twelve per cent. Removal of a focus of infection produced a relapse in five per cent of their cases. They found a greater incidence of the disease in winter and the lowest in June.

Hare points out the resemblance of colitis to a deficiency disorder and urges treatment with high vitamin diets and massive doses of iron and liver. The temporary increase in diarrhea or of other symptoms which often follows at the outset is no contraindication to continuing the treatment. Improvement in the intestinal symptoms may be slow, especially at the beginning of an acute relapse, and perseverance is required. It is urged that all local treatment and sigmoidoscopic examination should be avoided if possible, as the intestinal wall is highly sensitive to trauma. If colon lavage is continued, it may keep up the diarrhea and bleeding and cause apparent failure of other treatments.

- Spriggs, E. I. Chronic ulceration of the colon. *Quart. J. Med.* 3 549 (Oct.) 1934.
 Banks, E. M. and Bargin, J. B. Relapses in chronic ulcerative colitis. *Arch. Int. Med.* 53 131 (Jan.) 1934.
 Hare, D. C. Non specific colitis in relation to deficiency disorders and anaemia. *Brit. M. J.* 2 162 (July) 1934.

THE COLON

Weber evaluates the different methods of studying the colon by x-ray and concludes that of all the methods the contrast meal taken by mouth is the least satisfactory.

Friedenwald and M. Feldman give the results of their observations on the redundant colon. They discuss the symptomatology, diagnosis and treatment which is aimed to restore the normal function of the bowels as far as possible.

- Weber, H. M. Roentgen diagnosis of diseases of the colon: an evaluation of methods. *Am. J. Roentgenol.* 31 607 (May) 1934.
 Friedenwald, J. and Feldman, M. Clinical observations on the redundant colon (Dolichocolon). *South. M. J.* 27 147 (Feb.) 1934.

Hirschsprung's Disease

Telford urges that sympathectomy be done early in cases of Hirschsprung's disease as a good result can be expected only in those cases where the colonic wall is capable of response to the altered innervation. The author is accustomed to divide those ramæ which pass from the neighborhood of the first and second ganglia to the aortic plexus, by this means he expects to break the sympathetic and preserve the parasympathetic supply.

Bonar presents a method for the temporary treatment of Hirschsprung's disease. He has obtained successful results by rectal instillation of a saturated solution of magnesium sulphate. After instillation the colon has emptied itself completely of enormous quantities of material. (The reviewer would suggest that this may be

a violent means of emptying the colon and some care should be used in trying this procedure.)

Telford, E. D.: Sympathectomy. *Lancet*, 1:444 (Mar.) 1934.
Donar, R. E.: Polyprectal schiasia (Hirschsprung's disease).
Temporary medical management by rectal administration of
magnesium sulphate. *Am J Dis Child*, 48:122 (July) 1934.

Tumors of the Colon

Runyon reports a case with rectal involvement by the Krukenberg tumor. The patient, a woman of sixty-four, had had attacks of pain in the epigastrium and right hypochondrium for several years with nausea and vomiting. On physical examination the examiner noted a mass in the epigastrium which he diagnosed as carcinoma of the stomach or gall bladder disease. Four months later she was having frequent attacks of diarrhea, at which time marked constriction of the rectum was found three inches above the anus. This was treated by dilatation. About a year later she died following a perforation in the upper part of the sigmoid. The diagnosis at autopsy was Krukenberg tumor involving the stomach, ileum appendix, sigmoid rectum and ovaries. The author believes that the primary lesion was probably in the stomach with metastases to the other organs. The distribution of the lesions in this case would suggest its having been spread by the cancer cells falling from the stomach focus into the organs of the abdomen and becoming implanted there as suggested by Erdheim and Schiller.

Runyon, F. G.: The Krukenberg tumor: report of a case with rectal involvement producing stricture. *J. A. M. A.* 103:1199 (Oct.) 1934.

Constipation

R. S. Leadingham discusses the treatment of chronic constipation by means of high fat and low residue diets and very sensibly points out that virtue of this dietetic treatment is probably due to the small amount of cellulose in patients who have a spastic type of intestine.

Leadingham, R. S.: A high fat, low residue diet in the treatment of chronic constipation. *South. M. J.* 27:9 (Jan.) 1934.

Mite Infestation

Kampmeier and Hinman report two cases whose gastro intestinal tracts were infested by mites (tyroglyphus longior). Both were suffering from diarrhea and the parasites were found in the stools. Proctoscopic examinations showed that the mucosa presented a granular appearance with slight infection and there were also petechial like spots and ulcers of about one to two mm in diameter. One of the cases had had recurrent attacks with loose bowels with spontaneous cure. The authors believe that the mites were the cause of the diarrhea.

Kampmeier, R. H., and Hinman, E. H.: Mite infestation in the human intestine. *South. M. J.* 27:371 (Mar.) 1934.

The Rectum

Bue and Brust summarized one hundred cases of high rectal pain and made the following diagnoses: neurosis 1, rectal neurosis 1, chronic nervous exhaustion 26, rectal neuralgia 12, psychoneurosis 12, tabetic rectal crises 8, radium proctitis 5, prostatic disease 6, coccygodynia 1, sacrococcygeal arthritis 2, pelvic tumor 3, adenomyoma of rectovaginal septum 2, cystocele and rectocele 1, chronic pelvic inflammatory disease 1, cause of pain not found 19. In making this study the authors purposely omitted all cases in which there was some primary rectal disorder capable of accounting for the patients' discomfort.

Preusser reports the use of some local anesthetic such as benzocaine in the treatment of spastic anal sphincter following surgical measures for the relief of anorectal disease. The anesthetic is dissolved in sweet almond oil to which a small amount of benzyl alcohol has been added to act as a solvent in the mixture. He says that relaxation of the sphincter occurs almost immediately and continues until the oil is completely absorbed, usually four to seven days.

Lee and Staley found that fourteen out of sixteen patients with rectal stricture gave a positive Frei test for lymphogranuloma inguinale. They believed that the test was supported by the selective localization of the stricture in the region of the chief lymphatic network surrounding the anus.

Morley discusses two cases of complete prolapse of the whole rectal wall that he has treated by injection and he urges that a conscientious trial be made by other rectal surgeons before submitting patients to one of the ordinary operations for rectal prolapse. All operations for rectal prolapse are severe and all are liable to failure. One of the advantages of treatment by injection is that it does not necessitate any confinement to bed. In both of the author's cases there was definite prolapse not merely of internal hemorrhoids but of a considerable length of the whole rectum. Both had toneless sphincters with obliteration of the anal canal and both complained chiefly of incontinence of feces. The author does not suppose that complete relief will be permanent in either case. The technique differs slightly from the method of injection for internal hemorrhoids with phenol in almond oil in that for the high injection for true rectal prolapse one aims at inserting the needle slightly deeper than the submucous tissue. It should be introduced deeply enough to reach the muscular coat. If this is done successfully the swelling produced by the oil in the submucous tissue does not appear to the same extent and the "stratification sign" that enough has been injected at any particular spot

does not occur. One is reduced to guess at the correct amount. The author has usually injected from two to three cc at each puncture. The aim is to inject all around the rectal wall. If one feels the rectum from the vagina after two or three treatments the whole intestine feels hard and the sensation closely resembles that produced by an annular carcinoma of the rectum when felt from the vagina. All this thickening disappears three or four weeks after the completion of the treatment. This inflammatory process results in close adhesions of the mucous and submucous coats to each other and to the muscular coat. This in itself prevents the intestinal wall from prolapsing and, moreover, the submucous space being more or less obliterated, the main hemorrhoidal vessels that feed the piles are compressed and the hemorrhoids are cured in that way.

- Bule L A and Brust, J C M. High rectal pain: an analysis of one hundred cases. *Am J Digest Dis & Nutrition* 1 591 1934
- Freusser W F. Control of the spastic anal-sphincter. *Am J Surg* 25 327 (Aug) 1934
- Lee H and Staley, R W. Inflammatory strictures of the rectum and their relationship to lymphogranuloma inguinale. *Ann Surg* 100 486 (Feb) 1934
- Moric A S. Injection treatment of complete rectal prolapse: report of two cases. *Brit M J* 2 204 (Aug) 1934

THE APPENDIX

Clavel and Colson have made a careful study on the so-called double appendix. There has been one case which they have personally observed and they report on three other cases. They first discuss whether the double appendix is a real anomaly or the result of faulty observations. They state that the following requirements are needed for diagnosis of true double appendix: (1) The existence of different coats, particularly muscular, (2) The existence of a double cecal implantation, (3) The existence of a vascular supply analogous to a normal appendix. As a result of their studies they conclude that the double appendix may be a true congenital anomaly.

Goldberg and Nathanson point out that an acute mesenteric lymphadenitis may give a picture similar to that of acute appendicitis. They report the results on sixteen surgical cases in which the appendix was grossly normal. Five

of these cases showed fluid present in moderate quantities. Enteritis of some degree was not infrequent. They stated that the etiology is not known but suggest that the condition may be due to a streptococcal involvement coming from the throat. (All of us have probably seen similar types of cases at one time or another but it is something that is easy to forget and it seemed worthwhile to abstract this report.)

St John discusses the condition called fibroblastic appendicitis which was first described by Laewen in 1914. The author feels that it probably occurs more frequently in those individuals having a special disposition to react to chronic irritation by the production of abundant connective tissue.

Vance reports three cases of primary carcinoma of the appendix and states that 0.5 per cent of all appendices removed show evidence of carcinoma. Metastases have been reported nine times in the literature. Usually the condition is benign. Two types of cells are recognized, spherical round cell or a basal type, and columnar or adenomatous type. The condition is never diagnosed preoperatively.

Several excellent studies have been made on acute appendicitis. Wevill and Wallace have studied eight thousand cases in English hospitals and find that the number of admissions has increased considerably in the past few years. The number of cases requiring drainage has steadily decreased. The general mortality in their series was 4.5 per cent. This is probably a slight decrease in the mortality rate during the past ten years, although for the past four years it has been steady.

As a result of his studies at the Boston City Hospital, Walker concludes that there has been an increasing number of deaths. It is his impression that the disease is on the increase.

- Clavel C and Colson P. A study on the double appendix. *Ann Anat. Path* 11 157 (Feb) 1934
- Goldberg S L and Nathanson L T. Acute mesenteric lymphadenitis. *Am J Surg* 25 35 (July) 1934
- St. John, V. Fibroplastic appendicitis. *Am J Surg* 25 243 (Aug) 1934
- Vance C A. Primary carcinoma of the vermiform appendix. *Am J Surg* 24 854 1934
- Wevill L B and Wallace H L. Acute appendicitis. *Edinburgh M J* 41 557 (Oct.) 1934
- Walker I J. Why the increasing mortality in appendicitis? *Am J Surg* 25 228 (Aug) 1934

(The End)

PHYSICIANS AS ANESTHETISTS

Dr Goldwater, Commissioner of Hospitals for New York, has announced that only graduates in medicine will be permitted to administer anesthetics in Bellevue Hospital. This move is to displace nurse technicians who have been doing this work.

If this plan proves to be successful, it will be adopted in twenty-five New York City Hospitals. One purpose in this experiment is to teach internes in this department of medical service, and thus prepare them for specialization in this field. Incident-

ally, Dr Goldwater expects to demonstrate more efficiency, as well as economy.

A WARNING TO SURGEONS

The *New York Times* reports, in substance, that John Edgar Hoover, Director of the Federal Bureau of Investigation, will prosecute surgeons who alter the finger ends employed in making prints, and the features of criminals.

Such technical plastic surgery will be construed "as conspiring to harbor, or harboring, the fugitive." The full article appears in a recent issue of the *American Journal of Surgery*.

VERMONT STATE MEDICAL SOCIETY

PHYSIOLOGY, PATHOLOGY, AND TREATMENT OF
CRANIOCEREBRAL INJURIES*

BY WINCHELL MCK CRAIG, M.D.†

THE pathologic and physiologic effects of cranio-cerebral injuries depend not only on the severity of the trauma and the extent of the lesion, but also on the proper type of treatment. Preventive medicine is receiving a great deal of attention at the present time, consequently we are becoming more interested in the most effective methods of treatment. This is especially true of the treatment of injuries of the head, which frequently are followed by latent disabilities.

It is rather discouraging to note that 80 per cent of cranio-cerebral injuries are followed by definite post-traumatic symptoms. Glazer has analyzed a large series of cases in which there were post-traumatic symptoms and has discovered that headache occurred in 67 per cent and dizziness occurred in 60 per cent. The very troublesome and incapacitating nervous fatigue which is associated with insomnia and visual disturbances, occurred in 30 per cent. Probably the most distressing fact was the occurrence of post-traumatic epilepsy in 6 per cent of the cases in Glazer's series. This unfortunate sequel has been reported to occur in as many as 12 per cent of cranio-cerebral injuries. The scope of these latent post-traumatic disabilities is understood more easily when we review the problem of injuries to the head, from the standpoint of the number of accidents that occur annually.

In discussing this problem, Mack reviewed the total number of accidents that occurred in 1929 and placed the figure at 3,705,000. The public accidents, which were chiefly caused by the automobile, numbered 1,085,000. Industrial accidents numbered 2,620,000. The total number of accidental deaths in the United States was 51,000 for the year 1929, and the approximate number of deaths, which resulted from fractures of the skull in the United States was 25,000 and the average mortality for cranio-cerebral injuries was 25 per cent. The approximate number of fractures of the skull, which occur annually in the United States is around 112,000. In view of the fact that the mortality for cranio-cerebral injuries is 25 per cent, I should like to discuss not only this group in which the patients die, but also the remaining 75 per cent

of cases, in which 80 per cent of the patients who survive have post-traumatic symptoms. In reviewing the pathology of cranio-cerebral injuries we must recognize that, in the more extensive injuries, the cerebral hemispheres are injured irreparably. However, it is very encouraging and interesting to note that post-traumatic edema probably plays a greater part in the production of serious symptoms than does laceration of the brain, or hemorrhage. It has been ascertained that the first forty eight hours following cranio-cerebral injuries is the period in which most fatalities occur, it also has been determined that the mortality is 66 per cent for cases in which the patients are unconscious at the time of their admission to the hospital, whereas in cases in which the patients are conscious at the time of their admission, the mortality is only 7 per cent. In view of the fact that post traumatic edema plays a very important part in the course of the illness, and inasmuch as this post traumatic edema can be treated satisfactorily, we must assume that of fectional treatment which is instituted at the proper time and which is carried out over a sufficient time, should not only reduce the mortality but should also prevent such a high incidence of post-traumatic symptoms, or at least, should decrease their severity and should tend to prevent the occurrence of convulsions and total disability.

It has been assumed that the most important clinical factor in cranio-cerebral injuries is the amount of injury that may be disclosed by the Roentgen rays but this is only of medicolegal importance, it has been recognized for a long time that fractures of the skull are no indication of the extent of the cerebral injury and that roentgenologic examination of the skull is only one part of the examination that is necessary to determine the exact condition of the patient. The vascularity of the meninges, especially those which are situated about the sinuses and at the base of the brain, makes intracranial hemorrhage a distinct hazard and in spite of the stabilizing influence of the falx cerebri and the tentorium cerebelli, it is evident that any blow to the head may tear the meninges or may injure the cerebral cortex. In roentgenologic examination of all cranio-cerebral injuries the surgeon is impressed by the number of linear fractures which are not associated with any disability. If these are treated by prolonged rest in bed there is little tendency

Read at the one hundred and twenty first meeting of the Vermont State Medical Society Burlington Vermont, October 4, 1934.

*Craig, Winchell McK—Associate Professor of Surgery Mayo Foundation, University of Minnesota Medical School. For record and address of author see "This Week's Issue" page 791

for the unpleasant post-traumatic symptoms to develop. Therefore, in view of the fact that the roentgenologic examination of the skull is not an index of the underlying pathologic and physiologic changes, which are present within the brain it is necessary to keep these patients under very close observation and frequently to record the pulse rate, the blood pressure, the temperature, and the respirations. A definite record also should be kept of the state of consciousness of the patient, the extremities also should be examined to determine whether there is any loss of motion.

Fractures of the skull may be linear or depressed, and sometimes it is difficult to demonstrate definite depression by the roentgenogram. A depressed fracture may involve both the inner and the outer tables, and it may be either simple or compound. A linear fracture, which extends into the base, may be associated with more serious clinical symptoms than occur with a compound, depressed fracture of the vault. Compound depressed fractures require surgical treatment, and serious considerations also should be given to the surgical treatment of simple, depressed fractures because it is difficult to demonstrate fragmentation of the inner table with the roentgen rays, and these fragments may have perforated the dura.

Aside from the extensive compound and depressed fractures that produce cranio-cerebral injuries, the most disabling phase probably is the result of concussion and contusion of the brain. The term "concussion" is very indefinite and, for that reason, has created a controversy among members of the medical profession. The reason for this is that, in reality, it is a physiologic and not an anatomic lesion, and no pathologic changes can be demonstrated at post-mortem examination. Concussion usually carries with it the idea of temporary unconsciousness which follows a blow on the head. This loss of consciousness has been attributed to anemia of the brain, to a chemical change which involves both the lipoids and the protein molecules, and to interruption of the synaptic junctions of the subcortical centers within the mid-brain. According to the latter explanation the mechanism which is responsible for the temporary loss of consciousness that occurs in concussion, may be compared to the jar which disconnects the switch that controls the lights on an automobile. The symptom-complex which is signified by concussion usually consists of immediate and temporary unconsciousness that generally is followed by headache, nausea, and vomiting. The clinical course is featured by rapid recovery from all symptoms, although patients who have died following injury to the head have disclosed no gross lesions at necropsy. Concussion may affect either the cerebrum or the medulla oblongata, it is more serious when it involves the latter. Prize fighters who are

knocked out probably suffer from concussion which affects either the medulla oblongata or the cerebrum. An interesting condition which has been called "punch drunk", has been observed among prize fighters. These individuals become troubled by ataxia, incoordination, some spasticity, and mental changes, all of which probably result from repeated concussion with petechial hemorrhages, which are scattered throughout the brain. Clinically, it is important to recognize cerebral concussion because proper treatment should be instituted to prevent the development of sequelae.

The development of edema in the cerebral tissues is very closely associated with concussion of the brain. Pathologists have recognized this condition as the most frequent change, which is discovered in the brain at post-mortem examination of patients who have died as a result of concussion. The gross pathologic findings consist of convolutions which are flat, with cerebral veins, which are relatively empty, with subarachnoid spaces, which contain a diminished amount of cerebrospinal fluid. Microscopically, the perivascular lymph sheaths are discovered to be distended, and the water content of the brain has been disclosed to be greatly increased. The exact physiologic explanation of the development of post-traumatic edema is still speculative, although it has been demonstrated that edema occurs when there is an increase of colloids in the tissues. This increase of colloids is caused by an increase in acidity, it has been demonstrated that patients, who are recovering from concussion and contusion of the brain, excrete in the urine an increased amount of lactic acid, acetic acid, and phosphoric acid. Regardless of the cause, it is an accepted fact that the majority of symptoms which occur in cranio-cerebral injuries are results of increased intracranial pressure, which in the great majority of cases is the result of associated cerebral edema. When we realize that the brain is enclosed in a non-expanding shell, that edema is the most common cause of increased intracranial pressure, that increased intracranial pressure results in interference with the venous return from the brain, and that this last hinders absorption of cerebrospinal fluid, it is clear that even the slightest injury of the head, which produces edema, may result in serious clinical conditions unless proper treatment is instituted.

Contusion of the brain usually indicates localized injury to the cerebrum. It frequently is the cause of death. In contrast to concussion, the symptoms of contusion usually develop after a latent period, which may last for hours or days. Contusion is associated pathologically with varying degrees of hemorrhage, which are usually small and petechial in type. The localized changes which occur at the opposite pole of the skull constitute another factor in contusion, this usually is spoken of as contrecoup injury.

These contrecoup lesions may explain bilateral symptoms or clinical symptoms which indicate that the lesion is on the side opposite to the site of the injury. Lacerations of the meninges and of the cortex usually occur with depressed fractures, although severe head injuries with out fracture have caused tearing of the meninges and cortex. Intracranial hemorrhage, which is the result of craniocerebral injuries may be of two types, according to their situation intradural or extradural. Hemorrhage probably occurs in every severe craniocerebral injury and may, or may not, play a part in the development of disabling sequelae. The most alarming hemorrhage, which may occur following injury of the head, is that which is associated with injury of the middle meningeal artery. The resulting symptoms are usually those of increased intracranial pressure, and develop after a latent period.

The symptoms that follow craniocerebral injury seldom indicate that the patient is suffering independently from concussion edema contusion or hemorrhage, but indicate that a combination of these lesions usually is present. A more useful classification for treatment of craniocerebral injuries therefore has been adopted. This consists of (1) slight injury with few symptoms and recovery under expectant treatment, (2) indeterminate injury with variable symptoms, in which treatment depends on developments which arise during observation, and (3) severe injury with pronounced symptoms and no response to treatment. In classifying craniocerebral injuries in this manner, the fact must be accepted that no matter how slight an injury may be, it always can be followed by severe sequelae, and that no injury is so extensive that recovery may not occur with the proper treatment. Keeping in mind this classification and the fact that our object is not only to bring about recovery of the patient but also to accomplish this with as few post traumatic sequelae as possible, the proper treatment will be considered.

All patients, who are suffering from shock when they are first seen, should be treated for shock before any extensive examination is carried on. Following their recovery from shock, a complete general examination for associated injury should be made. This should include repeated estimations of the blood pressure, and the rate of the pulse should be recorded frequently. A complete neurologic examination should be made to determine the amount of disability that has been produced. As soon as the patient is able a roentgenologic examination of the skull should be made. This should include anteroposterior and lateral roentgenograms. The neurologic examination should include a lumbar puncture and examination of the cerebrospinal fluid. When a patient who has suffered an in-

jury of the head is subjected to lumbar puncture, the pressure of the cerebrospinal fluid should be measured with the manometer. A lumbar puncture serves two purposes (1) it enables the surgeon to estimate the pressure of the cerebrospinal fluid, and (2) the presence of blood may be determined by either gross or microscopic examination. There is a great difference of opinion with regard to the therapeutic value of spinal drainage following injuries of the head, but it has been demonstrated experimentally that blood in the subarachnoid space definitely interferes with the absorption of the cerebrospinal fluid by collecting and coagulating around the arachnoid villi. Spinal drainage removes the blood from the subarachnoid space and tends to avert post traumatic symptoms by preventing any alterations in the circulation of the cerebrospinal fluid. Spinal puncture should not be done in all cases. Spinal drainage should be instituted only in those cases in which there is evidence of blood in the subarachnoid space, and never should be employed until manometric readings demonstrate that the danger from increased intracranial pressure is not too great.

The proper treatment for concussion is rest in bed with careful observation for changes in pulse, blood pressure and size of the pupils. The surgeon also should watch for the development of paresis or anesthesia, which indicates more serious complications. The treatment of cerebral edema consists of limiting the intake of fluids, of the administration of enemas of magnesium sulphate of the intravenous injection of dextrose, and of the employment of spinal drainage. In the treatment of craniocerebral injuries rest has probably never been stressed enough. A fractured femur is placed in a cast until union has occurred, a sutured nerve is protected and supported until regeneration has taken place, but a patient who has an injured brain is allowed to get out of bed in a very few days, and as a result, delayed post traumatic headaches, vertigo general malaise and so forth develop. In the treatment of injuries of the head, patients should be kept in bed for three weeks in order to prevent these disabling sequelae. This period of rest should be complied with frequent observation of both the rate of the pulse, and the blood pressure. If edema is present, the intake of fluids should be limited, spinal drainage should be employed if there is blood in the subarachnoid space, and dextrose should be administered in hyperosmotic solution for the relief of shock and increased intracranial pressure. With the observance of these measures, it is possible to lower the mortality and to reduce the incidence of disabling post traumatic sequelae. The cases in which surgical treatment is required are those in which

there are lacerations of the scalp and compound or depressed fractures of the skull. A patient who has suffered concussion occasionally may have to be subjected to subtemporal decompression, and latent symptoms, which develop under observation, certainly should suggest hemorrhage from the middle meningeal artery, and operation should not be delayed. Cases sometimes are observed in which the cerebral injury does not seem to be so great as is cerebral irritation, and the symptoms vary from mild restlessness to those of a manic state. There is probably no more efficacious sedative for quieting these patients than the barbiturates, the intravenous administration of sodium amytal and the rectal administration of pentobarbital sodium in perforated capsules is useful to quiet these patients. In observation and treatment, it is sometimes necessary to carry out feedings by the intranasal tube, and patients who have been fed for as long as two weeks in this manner have completely recovered.

One of the most important of the sequelae, which follow craniocerebral injuries, is the so-called chronic subdural hematoma, or pachymeningitis hemorrhagica. In this condition, the symptoms generally develop in from two weeks to six months following the injury to the head. Usually, the injury is more or less trivial and the patient has received little if any, treatment. The onset of the subdural hematoma is insidious and the symptoms generally consist of headache, vertigo, change of personality, or increased intracranial pressure. The condition frequently simulates a tumor that is situated deep in the brain, and many of these cases are discovered in the course of ventriculography. At operation, an encapsulated collection of liquid blood is discovered beneath the dura, this compresses the brain. The clinical relief, which follows operation, is usually dramatic and is featured by the disappearance of all symptoms and by the sudden return to normal. The treatment consists of either washing out the clot by means of multiple openings which have been made with the trephine or of reflecting a small flap and evacuating the clot. The mortality is high in these cases if the condition is not recognized

early and the patient operated on, therefore, the condition should be kept in mind whether signs of increased intracranial pressure develop or in every case in which there is intracranial derangement following even a slight injury to the head.

Probably the later developments which indicate pathologic and physiologic changes that have taken place in the brain over varying periods of time constitute the most distressing phase of craniocerebral injuries. These are evidenced by mental retardation, emotional instability and convulsions. In order to distinguish between the functional and the organic factors, encephalography has been of extreme value. This procedure consists of the injection of air into the subarachnoid space, through a lumbar puncture needle. By draining the subarachnoid space and the intraventricular spaces, and by injecting air, the different markings in the roentgenograms will disclose the atrophic and degenerative changes which have taken place. Encephalography is not only of extreme diagnostic importance in these old cases of injury to the head but it also is frequently of therapeutic value in relieving the headaches, in lessening the severity of the attacks of grand mal and petit mal, and in improving the general condition.

A complete discussion of craniocerebral injuries becomes so involved that it is impossible to cover all points, but if the proper recognition is acquired and treatment is carried out in every case, regardless of how trivial or how severe, the mortality will be lowered and the development of disabling post-traumatic sequelae should be diminished, even including the incidence of post-traumatic epilepsy.

NOTICE

Preliminary cards have been forwarded to members of the Vermont State Medical Society notifying them of the Clinical Meeting to be held by the Vermont State Medical Society and the Medical Department of the University of Vermont jointly on May 3 and 4 at the Mary Fletcher Hospital in Burlington. Doubtless the regular program will have been received by the time this notice appears in print.

CASE RECORDS
of the
MASSACHUSETTS GENERAL
HOSPITALANTH MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.

CASE 21171

PRESENTATION OF CASE

A fifty-five year old Irish widow was referred to the House from the Out Patient Department because of jaundice.

One and a half years before entry the patient was first seen in the Ear Clinic because of marked ringing in the ears for several months. Upon examination a large perforation of the nasal septum was found. Transillumination of all the sinuses showed dullness. A routine Hinton test was positive. The Wassermann was negative. She was transferred to the Skin Clinic where repeated Hinton tests were positive and Wassermann tests negative. A lumbar puncture was negative. Three months later she was put on a course of bismuth, she was given 15 injections the last one approximately one year before admission. She was then put on potassium iodide and mercuric chloride until six months before entry at which time neovascular phenamine treatments were begun. She was given ten injections, three tenths of a gram each the last one four and a half months before entry. This was followed by 15 injections of bismuth, two tenths of a gram each over a period of three months. A Hinton test at that time was reported as doubtful. She was then discharged from the clinic and told to return in three months, during which period she was to take mercuric chloride, one-sixteenth of a gram three times a day.

Four weeks before admission she became nauseated and vomited everything she ate. This was associated with a heavy feeling of discomfort in the epigastrium when food was eaten and also a dull steady pain around the umbilicus. The vomitus consisted of unchanged food but no bile or blood. She became very constipated. One week later jaundice was first noticed and during the following week it became more marked. She also noticed that her urine was dark and that her stools were light colored. She remained in bed for three days on a diet of water, milk, orange juice and custard. The jaundice began to wane and she returned to the Skin Clinic and was then admitted to the House.

She had been married thirty-five years. Her husband died eleven years ago from pneu-

monia. There were no miscarriages or still births. One child was living and well. There was no history of venereal disease.

Eighteen years ago she had a left-sided pleurisy with effusion and spent seven months in a sanatorium.

Physical examination showed a well developed and nourished, markedly jaundiced woman. There was a large perforation of the nasal septum. The left supraclavicular region was full and slightly firm. The lungs were clear. The heart was not enlarged. There was an unusually loud booming aortic second sound, a soft blowing systolic murmur at the apex and along the left border but no diastolic murmur. The blood pressure was 114/70. The liver was felt three fingerbreadths below the costal margin by two observers, but was not felt by others. The liver dullness extended up to the fifth rib. The edge was sharp and non-tender. The spleen was not felt. The ankle jerks were not obtained. The right knee jerk was slightly sluggish and weaker than the left.

The temperature was 98.4°, the pulse 90. The respirations were 25.

The urine was brownish red in color, had a specific gravity of 1.020 and gave a positive test for bile. The red blood cell count was 4,540,000, with a hemoglobin of 90 per cent, the white cell count 9,000, 81 per cent polymorphonuclears. The stools were yellow and two out of four gave a positive guaiac test. A Hinton test was positive and a Wassermann negative. The van den Bergh was 22.5 milligrams per 100 cubic centimeters direct. The nonprotein nitrogen was 31.

X-ray examinations done both in the Out Patient Department and in the House showed a diaphragmatic hernia which was fixed in the chest and which could not be reduced. With the patient lying on her stomach there was a definite splitting of the barium at the junction of the middle and lower third of the stomach. This filling defect was also noted with the patient lying on the back and in the right and left oblique views. In the lateral view no filling defect within the stomach could be found. The mucosa of the stomach showed a marked thickening and distortion. The duodenal cap was normal. There was a diverticulum in the duodenal jejunal junction. A chest plate showed that the transverse diameter of the heart was increased. The supracardiac shadow was at the upper limits of normal.

She was given large amounts of intravenous glucose. Her temperature remained fairly flat until approximately two weeks after admission when it rose to 101°. She developed marked ascites and anasarca. There were only a few rales at the bases. The liver could not be felt. Her breath had a definite "mouse" odor. She rapidly failed and died two days later.

DIFFERENTIAL DIAGNOSIS

DR. CHARLES L. SHORT The story of the patient's course in the Out Patient Department up to four weeks before entry may be said to represent the preliminary events leading up to the fatal illness. She came to the Ear Clinic and a Hinton test was done, undoubtedly on account of the perforated septum. We are not told how long she had it or whether there was a history of trauma or an abscess there. Repeated Hinton tests were positive, with Wassermanns negative. I believe this is not infrequently the case in late syphilis, and we have no reason to doubt that she did have syphilis whether Dr. Mallory will be able to demonstrate it or not. She was given a conservative course of treatment, first bismuth, then mercury, then neoarsphenamine, about ten injections in small doses, the last one about three and a half months before the onset of her fatal illness. This was followed by bismuth and mercury.

The story of the next four weeks is certainly consistent with the gradual onset of hepatogenous jaundice. She was not very sick for she remained in bed only three days. The observation, probably by her family, that the jaundice was beginning to wane I do not believe can be depended upon. Her family history and past history do not seem to be of importance in the present situation.

The important points in the physical examination are the marked jaundice, the cardiac findings and the palpable liver. The tenderness of the liver edge is said to be in favor of so-called arsphenamine jaundice rather than infectious or catarrhal jaundice, where the liver is more often tender. The reflex findings may indicate a latent tabes although the lumbar puncture findings were normal.

She had no anemia. The white count, which is slightly above normal, with moderate polymorphonucleosis, is again said to be in favor of arsphenamine jaundice as distinguished from infectious jaundice. She had two out of four positive guaiac tests in the stools, and the van den Beigh confirmed the intensity of the jaundice.

In summary, then, we have a patient with latent syphilis developing severe liver damage about three and a half months after the last injection in a course of neoarsphenamine which had been preceded by and followed by a course of bismuth and mercury.

X-RAY INTERPRETATION

DR. GEORGE W. HOLMES I will take the chest films first. This is the anteroposterior view of the chest to show the size and shape of the heart. There was also a fluoroscopic study. The patient is a luetic and of course we would naturally look for changes in the aorta. Her supracardiac shadow is slightly increased. There is a

slight prominence of the ascending portion of the aorta, and the aortic knob is not so prominent as one would expect in a patient of this age. All of these three things that I have mentioned are findings that accompany luetic aortitis, but none of them are conclusive. In the oblique view of the chest we get a rather better view of the aorta and it does not seem to be dilated in the visible portions. The ascending portion might have some dilatation but in the transverse and descending parts it is not dilated. Here is a little better view. We can see that the aorta, as it passes over to the left and down on that side, is not particularly remarkable. So far as our examination of the chest goes we have evidence that is a little suggestive of slight dilatation of the aorta but not enough to make a diagnosis.

In the examination of the gastrointestinal tract this film shows the hernia of the stomach through the diaphragm. Here you see the level of the diaphragm. This is the partially filled stomach and in this area the mucosa has a definitely abnormal appearance. It is granular in appearance. The usual lines are not present and it looks like a rather large lesion on the lesser curvature or posterior wall, not very far from the pylorus. Here is the diverticulum of the duodenum mentioned. This is the duodenal loop and at that point we see the small diverticulum. Here are a number of films that show the detail of the involved area in the stomach. Here is a film where the stomach is nearly empty. This is the pylorus. That would be the point of the lesion. Here are some small films centered directly over the lesion and you can see a deformity of the barium shadow. It looks almost like an ulcer, a large shallow ulcer crater. This is the pyloric end of the stomach. This the lesser curvature and here the involved area. The barium projects from the shadow of the stomach in a manner suggestive of an ulcer crater but it is not characteristic.

DR. SHORT Do you think it is of any significance that the filling defect could not be seen in the lateral view?

DR. HOLMES I think it is important that we are not able to demonstrate clearly a crater. The x-ray shows a definite lesion but the appearance is not that of a polypoid mass, rather that of an indurated area with irregular surface and abnormal mucosa, without positive evidence of an ulcer.

DIFFERENTIAL DIAGNOSIS CONTINUED

DR. SHORT In evaluating the x-ray findings I think we can consider the diaphragmatic hernia as incidental to the cause of the patient's death. She had had no gastrointestinal symptoms except those immediately preceding the onset of her illness. I suppose that the gastrointestinal x-rays were taken because the dia-

phragmatic hernia was seen when she was given barium to demonstrate the aorta. I do not know any other reason for it. She had no anemia as is sometimes found in cases of diaphragmatic hernia. The fact that the hernia was irreducible may mean that it was of the so-called short esophageal type. I think we can also pass over the diverticulum of the duodenum as of very little importance. The filling defect in the stomach has to be considered more carefully. There is apparently a definite involvement of the stomach wall as shown by the thickening of the mucosa. I do not think we can assume that this is an extraneous mass pressing on the stomach, although that might be thought of due to the fact that the defect was not present when the patient was seen from the side. I do not think the findings in the stomach permit us to draw a definite conclusion from the evidence at hand. It is possible of course that she had a benign or malignant tumor there. It is possible that she had a gastric ulcer. There have been a few cases of gastric ulcer reported along with diaphragmatic hernia. Then she may have had, of course, syphilis of the stomach. I think the important thing is whether we can link up the gastric lesion with the jaundice and death. If she had had either an intrinsic tumor of the stomach or an extraneous tumor, say of the pancreas, pressing on the stomach and giving this picture, I do not believe that her course would have been as described in the history. I think the rapid downhill course, the ascites and apparent shrinkage of the liver would be against obstructive jaundice or metastatic disease of the liver. We should expect a more gradual course with unchanged size of the liver or increase in size. She had no anemia, and the positive guaiacs in the stools could be explained either on the basis of the diaphragmatic hernia or due to the bleeding tendency existing in deep jaundice.

I think it is fair to conclude that this patient died from acute liver cell destruction, so-called acute yellow atrophy. Ascites and anasarca are not uncommon in this condition. I remember one patient, who died of acute yellow atrophy following the taking of arsphenamine, who was thought to be a cardiac on admission to the ward because the ascites and anasarca overshadowed the presence of jaundice.

The relationship of antiluetic drugs to liver damage is a debatable question. Bismuth rarely seems to be the cause of liver damage and practically never is associated with jaundice unless the bismuth has been preceded by a course of arsphenamine. The same thing can be said of mercury. The interval of three and a half months is not unusual in the cases of so-called arsphenamine jaundice reported. Of course an infectious jaundice might supervene in a patient receiving antiluetic treatment, and, similarly, an acute yellow atrophy occurs rarely in untreated syphilis. It is true that the inci-

dence of arsphenamine jaundice runs quite parallel to the incidence of liver disease in patients not treated with arsphenamine. This has been brought out in some studies made in the German Navy over a period of years.*

There is possibly a combination of factors at work here. A patient with syphilis treated with a drug known to be stored in the liver and an occasional liver poison may be more susceptible to any infectious process. I do not think we can answer this question until the etiology of infectious jaundice is known.

The question then comes up: Did she have syphilis of the aorta? There are no clinical symptoms mentioned. She had neither dyspnea nor pain. The aortic second sound was loud and booming in a patient who did not have hypertension. The x-rays give no clear cut evidence. I think we would be justified in making this diagnosis if there had been a definite dilatation of the aorta in the oblique view. With the evidence that we have, we certainly can suspect it and the aorta is the most likely place in the body that Dr. Mallory will be able to demonstrate the evidence of syphilis. There is no question I think, that she had a diaphragmatic hernia that she had syphilis which very probably can be demonstrated in the aorta, and that she died of acute yellow atrophy of undetermined etiology but with syphilis, arsenical treatment and possibly an unknown infectious factor all playing a rôle. The x-ray findings in the stomach I believe are incidental and any explanation of them would rest on speculation at least.

I cannot connect them with the cause of her death.

CLINICAL DISCUSSION

DR. FREDERICK T. LORD: I saw this patient in the ward. The case presentation fails to give a complete picture of the general condition which was obviously very poor. She presented the appearance of a seriously ill patient. She was apathetic, intensely jaundiced, with nausea and vomiting.

Our reasoning with respect to the diagnosis was much like Dr. Short's. We considered the possibility of partial obstruction from stone in the common duct. Though she had some pain in the region of the navel it was not severe and was not typical of a gall stone attack. Stone in the common duct did not seem a likely explanation.

Malignant disease of the stomach with secondary involvement of the liver was also considered and gastric analysis would have been desirable, but she was pretty ill to be put through even that procedure. The rapid development and severity of the symptoms are against malignant disease. The blood in the stools is difficult to explain but may be due to passive congestion of the gastrointestinal tract from obstruction in the portal system.

From the history of syphilis and the use of arsphenamine, the diagnosis would seem to be subacute yellow atrophy. With respect to the physical findings, I may say that I was one of those who did not succeed in feeling the liver or the spleen.

The development of ascites is interesting and, as Dr Short has said, a certain proportion of patients with yellow atrophy develop ascites. If the diagnosis of yellow atrophy is right, it would be interesting for Dr Mallory to tell us if there is any evidence of syphilis of the liver, because of the assumption that in certain persons damage to the liver from arsphenamine arises on the basis of previous injury by syphilis as a predisposing cause. One other aspect of the problem is the history of pleurisy which would suggest that the patient might have had a tuberculous pleurisy but this is probably of no moment in connection with the present problem.

DR ARTHUR W ALLEN I saw this patient in consultation four days prior to her death at which time she obviously was too ill to consider any surgical procedure, even if there had been any feeling from her history or her physical signs that would have led me to believe that surgery would offer any help. The two possibilities of course that we thought of from the surgical standpoint under these circumstances are malignancy affecting the head of the pancreas, causing jaundice, in which case a cholecystgastrostomy usually gives a considerable respite from symptoms, and common duct stone. But her story of so little pain was certainly not one that would lead us to believe that her jaundice was due to common duct stone, also right straight through the time of her stay in the hospital she continued to have some bile coming through into the intestine. I felt that the story, the physical signs and the appearance of the patient were so overwhelmingly in favor of toxic jaundice of some sort that surgery was contraindicated.

DR AUSTIN W CHELVER I feel that it was probably due to the arsphenamine that she died because it fits in so well with the cases as we see them where arsphenamine is given and followed in the old days by a course of mercury, sometimes intramuscularly, sometimes by mouth, and of late bismuth intramuscularly, and then, only not quite so long as this but some weeks after the arsphenamine, the patients develop jaundice from which usually they get well. In this case she did not.

DR E L OLIVER I have very little to add. If this is arsphenamine jaundice, which I believe it is, it brings up the question whether we should use arsphenamine in old cases of lues. This woman was fifty-five years old and I rather question whether any of the arsphenamine group was indicated. In old syphilis dating back twenty years or more we should be very cau-

tious in using it. We have had a good many of these cases of hepatitis and even in the cases that get well it is probable that the liver is damaged and life shortened more than it would have been from syphilis. I feel we ought to judge such cases very carefully before arsphenamine is given. The chances are that with bismuth and iodine she would not have developed this hepatitis which in all likelihood caused her death.

DR C M. JONES I would like to add one thing. The fact that she had ascites probably rules out the possibility of a surgical condition. Dr Vincent pointed that out several years ago when we had three cases of acute yellow atrophy in rapid succession. Each one was considered as a surgical emergency and no one could explain the fact that they had ascites. Dr Vincent rightly said that it was probably due to intrahepatic disease. Since then we have seen a good many of them. It is a fairly common finding, and when present rules against the surgical causes of jaundice such as stone in the duct.

CLINICAL DIAGNOSES

Subacute yellow atrophy with ascites and edema of the legs
Aortitis
Late lues, treated

DR CHARLES L SHORT'S DIAGNOSES

Toxic hepatitis—Acute atrophy of the liver
Diaphragmatic hernia
Syphilis
? Luetic aortitis

ANATOMIC DIAGNOSES

Acute atrophy of the liver (? arsphenamine).
Syphilis of the liver, healed gumma
Icterus
Ascites
Diaphragmatic hernia
Hemorrhagic bronchopneumonia
Chronic fibrous pleuritis, bilateral
? Lipoma of stomach

PATHOLOGIC DISCUSSION

DR TRACY B MALLORY The autopsy in this case disclosed a greatly shrunken liver weighing only a little over 800 grams which microscopically shows acute necrosis throughout the organ with practically no regeneration, in other words a typical picture of acute atrophy of the liver. There was one other significant finding, however, a deep indentation in the middle of the right lobe at the base of which was a dense band of scar tissue. I think there is every reason to believe that probably represents a healed gumma since the other changes in the liver were all obviously of very short duration, in fact unusually acute, whereas this lesion was

of many years' duration. A healed gumma would be the most logical explanation for the condition.

The rest of the body showed no evidence of syphilis except of course the perforated nasal septum which had been observed clinically. The ascending aorta was slightly dilated but showed nothing pathognomonic of syphilis. The descending aorta was normal in diameter. The aortic valves showed a small amount of calcification and roughening such as one commonly sees in elderly people. The pleural cavities had been obliterated by old fibrous adhesions. The lungs contained numerous hemorrhagic foci. There was a large hernia through the diaphragm of course. The lesion which had been seen in the gastric mucosa was a localized elevation of the mucosa about three centimeters long and a little over a centimeter wide over a cluster of fat cells in the submucosa but there was no trace of ulcer and nothing to suggest any neoplastic change, unless the lesion is to be interpreted a lipoma.

I would like to disagree with the authority quoted by Dr. Lord on the question of limitation of atrophy after arsphenamine in luetic cases. I have recently seen a patient go through what was undoubtedly a mild attack of acute yellow atrophy following arsphenamine treatment for Vincent's angina.

DR. LORD: May I correct your interpretation? It was not my contention but it has been contended.

DR. MALLORY: Dr. Cheever, I wonder if you have any opinion of this question of toxic jaundice following arsphenamine. Stokes of the Mayo Clinic and Ruge in Germany have both published some fairly large statistical studies.

DR. CHEEVER: There was a time several years ago when there was a great deal of jaundice here in Boston. Some of us in the South Medical (syphilis clinic) and Medical services got our heads together and found there was a definite rise in both departments so that the curve of increase and later on the curve of decrease were parallel. In the South Medical we were having a higher percentage of cases with jaundice than the Medical. I think there was something going around that played a part along with the antisiphilitic treatment. Also, there is something in the method of making the drug, I believe, because back at that time when a single make was being distributed throughout Boston the incidence of jaundice was rather alarmingly high in practically all the institutions in the city. Then the cases disappeared without our knowing why, although the same drug was being used right along but by a modified method.

DR. JONES: This came in December which is just about the time you get the seasonal increase of infectious jaundice.

CASE 21172

PRESENTATION OF CASE

A forty seven year old American widow was referred to the House from the Out Patient Department because of jaundice.

Eight months before entry the patient was first seen in the Ear Clinic because of deafness of a year's duration. Both Hinton and Wassermann tests were strongly positive. She was transferred to the Skin Clinic where an examination showed equal and regular pupils which reacted sluggishly. Examination of the heart was negative. The blood pressure was 165/95. A lumbar puncture gave clear colorless fluid. The total protein was 50 milligrams. The alcohol and ammonium sulphate tests were positive. The goldsol was 5555533211. The Wassermann test was strongly positive. A cell count showed 15 red blood cells. The dynamics were normal. A definite diagnosis of central nervous system syphilis was made. During the next month she received six injections of bismuth. Five months before entry she was started on tryparsamid treatment and during the next four months received fifteen injections. Approximately two months before entry she complained of pain running down the neck and shoulders to the hands. This pain was severe on the right side and only slight on the left, and disappeared almost completely within a week. One month before entry, when appearing for her sixteenth dose of tryparsamid, slight jaundice was noted. The treatment for that day was omitted and she was put on a high carbohydrate diet. In the course of a few days her skin became markedly jaundiced, her stools light colored and her urine dark brown. Her jaundice progressed and two weeks before entry she first noticed abdominal distention. Solid food at this time produced abdominal pain. An outside physician gave her some intravenous injections, sodium phosphate by mouth and advised enemas. Following this the distention improved but approximately six days before entry it reappeared. She remained in bed for the next five days during which period black and blue spots appeared in her skin. She also noted bleeding from her gums and rectum.

She was married twenty three years before admission. Her husband had deserted her several years before entry. Two children were living and well. There was no history of malarial carriage.

Her past history is non-contributory except for ear trouble as a child for which she was treated several times. She had no further trouble until the onset of her present illness. There was no history of venereal disease.

Physical examination showed a well-developed and undernourished woman in no acute distress.

The skin and sclerae were intensely jaundiced. There were purpuric areas on both forearms and on the left leg. There was blood on the gums. Expansion of the chest was diminished. The lungs were clear. The diaphragms were elevated. The heart was displaced upward and to the left. The rate was slow and regular. No murmurs were heard. The blood pressure was 125/60. The abdomen was markedly distended and shifting dullness was easily elicited. The liver was felt only by ballottement about four fingerbreadths below the costal margin. Another observer was unable to make it out. The upper border of dullness was in the fifth rib. The spleen was not felt. The ankle jerks were not obtained, the left knee jerk was feeble, the right was not obtained.

The temperature was 97.8°, the pulse 45. The respirations were 18.

The urine was brown in color and had a specific gravity of 1.022 to 1.030, a slight trace of albumin and a positive test for bile. The sediment was negative. No leucin or tyrosin crystals were observed. The red blood cell count was 4,200,000, with a hemoglobin of 70 per cent, the white cell count 2,900, 80 per cent polymorphonuclears. The stools were light brown in color and were negative for blood. Both Hinton and Wassermann tests were positive. The van den Bergh was 22.5 milligrams per 100 cubic centimeters, direct reaction. A liver function test showed 100 per cent retention. The bleeding time was seven minutes. She was put on potassium iodide, 15 grains three times a day, and given intravenous glucose.

Two days after admission an abdominal paracentesis yielded three liters of clear, bile stained, watery fluid with a specific gravity of 1.002. A culture was negative. No cells were seen in the smear. After the abdominal tap the liver could not be felt. The liver dullness was small. She was transfused twice but on the sixth day began to vomit small amounts of blood. Another tap three days later yielded four more liters of similar fluid. The blood pressure fell to 60/40. She very rapidly failed and died that day.

DIFFERENTIAL DIAGNOSIS

DR CHESTER M. JONES. I presume that the Hinton and Wassermann tests were taken on the suspicion that the deafness might have been on a luetic basis.

Nothing is said about the knee jerks, nothing about the abdomen. I would like to know whether the liver and spleen were palpable, but it is not possible to make any assumption as to what the abdominal findings were.

The lumbar puncture would make one consider that the reflexes were not entirely nor-

mal. I assume they made a flat diagnosis of central nervous syphilis, tabes or taboparesis.

"Approximately two months before entry she complained of pain running down the neck and shoulders to the hands." I do not quite understand that. Though it is possible that it might be the shooting pains of tabes, the description does not quite fit. It might have been neuritis although that would certainly be unusual. It is rare indeed that one gets a neuritis from the use of tryparsamid. I should put down a question mark as to the cause.

"In the course of a few days her skin became markedly jaundiced, her stools light colored and her urine dark brown." She has definite biliary disease and from the findings alone one can say there is a block and it may be due to an intra-hepatic or extrahepatic block as the case may be.

Two weeks after the onset of jaundice she became conscious of the fact that her abdomen was larger. There is no mention of constipation. I think it is perfectly proper to assume it is due to ascites rather than to a distended bowel.

"Solid food at this time produced abdominal pain." I cannot explain that statement. I suppose the most likely explanation is an acute gastritis or a subacute gastritis and that there is pain on the intake of food.

The use of intravenous injections may or may not give us any clue as to what she received. I presume that the physician felt she had severe liver disease. He must have known she was having antiluetic treatment and he may have given her sodium thiosulphate which is one of the methods of treating arsphenamine reactions or other drug reactions to heavy metals. It probably is of no value but it is used not uncommonly. It may have been intravenous glucose which would have been very much more to the point if she had what seems to be a definite toxic disturbance in the liver. The use of sodium phosphate is a time honored one in the presence of jaundice. It has no particular value over other mild cathartics so far as I know.

An enema was given in the hope that the abdomen was distended from gas rather than ascites. Following this the distention improved and it may well be that part of the distention was due to distention of large bowel with air.

She has become rather acutely sick in one month's time following the onset of jaundice. Jaundice came on without any symptoms to speak of. It was noticed by a physician rather than that she went to the physician speaking of it. That I think is not uncommonly so in patients with toxic jaundice due to one or another type of medication. They are usually not so sick subjectively as patients with acute jaundice due to catarrhal or infectious jaundice. During the month she became worse in spite of fairly

active treatment including intravenous therapy. Her abdomen became larger and finally five days before the month was up, she developed purpura. If that is linked up with hepatic disturbance it is a fairly bad prognostic sign.

The past history is unimportant.

"The upper border of dullness was at the fifth rib." That upper border of dullness might have been ascites. It is difficult with an abdomen full of ascites to be sure what the upper border of dullness is due to.

One would not expect to feel the spleen except by ballottement. The pulse was very slow a true bradycardia. This is a symptom often written about but very rarely seen in hepatic disorders. It is rather interesting to notice that one observer felt the liver and the other did not. It may be a fact that at one time the liver was up toward the anterior abdominal wall and could be ballotted and at another time could not be. Dr. Mallory has shown us on several occasions how difficult it is to attempt to determine the size of the liver. Both surgeons and medical men have the same difficulty and even at operation mistakes are made on the size of the liver. The fact that it was felt by one man does not mean that it was large. It may be a very small liver well anterior in an abdomen full of ascitic fluid.

The laboratory examination shows that she had a large amount of bile in the urine. The specific gravity was high indicating dehydration. The albuminuria is of no significance except that it indicates a certain amount of irritation from the deep jaundice.

The red cell count was nearly normal but in view of the dehydration the true red count should be lower than this figure. The white cell count was remarkably low, 2,900, with a rather unusual picture of 80 per cent polymorphonuclears. With a count that low 2,900 it is sometimes difficult to find one hundred cells and I am wondering if this is the absolute differential count. It may have been made on fifty or forty cells and the percentage taken. There is, no doubt, a leukopenia, which is not uncommon in severe liver disease regardless of the type. At times one gets a leucocytosis with acute yellow atrophy but just as frequently we have a low white count. It is true that we get a low white count in infectious jaundice.

If there was a positive test for bile—and probably the actual test of a brown stool is as good as any test we have—it fits in with the diagnosis of acute yellow atrophy because one can have some bile going through and still have intense jaundice.

The Hinton and Wassermann tests were positive. That agrees with the previous tests.

The van den Bergh is definitely high with a direct reaction which is of no significance at all from the point of view of diagnosis.

No mention is made of the clotting time. Presumably it would have been prolonged with poor clot retraction and a rapid sedimentation rate.

"She was put on potassium iodide, 15 grains three times a day, and given intravenous glucose." Apparently it was felt that she had a very sick liver and because of the possibility that in part it was associated with a syphilitic process they gave her iodides which could have done no harm. I doubt at this juncture whether they could have done any good either.

The specific gravity of the abdominal fluid is extremely low, a typical transudate with lower specific gravity than usual.

It is probable that the liver was not large at any time. If it was felt by the first man he caught it by ballottement because it was displaced by the ascitic fluid and was small rather than large.

As far as the diagnosis is concerned it seems to me we can make no logical diagnosis except acute yellow atrophy. Whether she had a preceding disease of the liver in the nature of syphilitic cirrhosis or something else which had gone on for some time, no one can tell. There is no reason to suspect it. We have no help from previous examinations because there is no note as to what the abdomen was like when the treatment was started, but presumably she did not have cirrhosis previously.

The cause of the acute liver toxemia from which she died is a very difficult one to be dogmatic about. The two drugs used in this case were bismuth and tryparsamid. My own feeling is that it must be a very rare occurrence to have bismuth as the cause of acute hepatic damage. I suppose it is possible. It may occur because it is a heavy metal and is handled in part by the liver and we know that heavy metals do cause damage of the liver. We have had two or three due to antimony and we have had one or two cases apparently due to gold. We have had many that we thought were due to arsenic. Theoretically there is no reason why it might not be due to arsenic, but she did not have a large dose. Tryparsamid certainly is a rare cause. I think we have no cases in the hospital where that has been assigned as the cause. The trouble it usually brings about is an optic atrophy or a dermatitis neither of which she had. All one can say here is that it was an arsenical, therefore it could in a particular instance cause acute liver damage. That it did is very difficult to say. I have forgotten the month in which this patient became ill.

DR. TRACY B. MALLORY. In March.

DR. JONES. Again the time when the infection that causes acute catarrhal jaundice is prevalent. In this past year there has been a great deal of acute infectious jaundice. It is possible that an infectious jaundice hit at the same time as the heavy metal and the combina-

tion of the two, with or without syphilis, might bring about a condition like this. The bleeding, the purpura and so forth are simply evidence of liver disease. I, personally, doubt if she could have been saved. We have without any question saved a certain number of cases of acute yellow atrophy from one or another cause in the last few years by glucose therapy and transfusion. I take it this woman had both. She was too sick by the time she came into the hospital for successful treatment. Purpura is not always a bad prognostic sign but it is apt to be. The fact that she had recurrence of ascites is indicative that the liver was hard hit. I should think the diagnosis was acute yellow atrophy, cause unknown. I do not believe syphilis of the liver will be found.

DR E. LAWRENCE OLIVER: I agree with Dr. Jones that tryparsamid and bismuth very rarely cause any definite liver damage. That is about all I can say. It seems this is a case very much like the other, an acute yellow atrophy.

DR A. W. CHEEVER: Tryparsamid seems to be a drug that is significantly free from accidents, even the eye damage is not common. I think I have seen four or five cases perhaps in a number of years with jaundice following its use, always very mild, except this one. Even dermatitis from tryparsamid is rare, I have never seen more than one case to be sure of it, although I have been suspicious of one.

With regard to bismuth causing liver damage, certainly I am sure we are not seeing any more now that bismuth is being used very freely than in the days when mercury was the only non-arsenical drug of value. I wanted to say one thing, more applicable to the previous case. I think patients in this age group should not be treated with arsphenamin without a great deal of thought since I believe it is rather likely to be distinctly dangerous, and unless there is some definite indication it should not be given. In this case there was a definite reason in the central nervous system involvement.

DR W. D. SMITH: I have nothing to add but my prognosis on this case was at least correct. I felt that she had hepatitis. I doubt if the tryparsamid had anything to do with it. I should like to ask Dr. Jones if the blood pressure falling to 60 would suggest hemorrhage? I should also like to ask him if this type of person does die of hemorrhage the way a portal cirrhosis might die of hemorrhage.

DR JONES: I did not know that they die of frank hemorrhage such as a hemorrhage from ruptured varix but I think they occasionally do have diffuse bleeding from the gastrointestinal tract, but not enough to drop the blood pressure in that way. I think that was because she was so ill and it was shock, partly from hemorrhage and partly from the fact that she was dying. I do not think she lost enough blood to drop the blood pressure that way.

CLINICAL DIAGNOSES

Toxic hepatitis with acute yellow atrophy of the liver
Ascites
Central nervous system lues
Gastric hemorrhage

DR CHESTER M. JONES'S DIAGNOSES

Toxic hepatitis—acute atrophy of the liver

ANATOMIC DIAGNOSES

Early toxic cirrhosis of the liver
Ruptured esophageal varix, with hemorrhage
Icterus
Ascites
Leiomyoma uteri

PATHOLOGIC DISCUSSION

DR MALLORY: The autopsy in this case showed a liver as small as that found in the preceding case, but whereas the first liver was soft and flabby, obviously freshly necrotic, this liver was firm, tough and definitely cirrhotic. The nodules that projected from the surface varied all the way from three millimeters up to two centimeters in diameter, a degree of marked variability in size which one does not see in the alcoholic type of cirrhosis but characteristically does see in the type of cirrhosis that follows an acute yellow atrophy.

Microscopically it is evident that though there is definite cirrhosis the process is a fairly recent one. There is no actual necrosis of liver cells going on. The liver cells which are left are found in islands of irregular size, and individually they tend to be quite large, sometimes multinucleated, occasionally in mitosis. Between them are found bands of rather loose, very vascular connective tissue with innumerable proliferating bile ducts. There are large areas where groups of bile ducts, evidently once supplying many lobules, have shrunk together in the midst of small foci of scar tissue. I think we can quite flatly say this is the type of cirrhosis that develops on the basis of atrophy. It is not so easy to be dogmatic, however, as to how long it has lasted. My guess would be that it is quite a recent process, probably under four months and over two months, though it must be admitted that any such estimate is little more than guesswork. Her actual story from the time she noticed jaundice to death was of six weeks' duration, so I am forced to assume that the onset of her disease occurred at least a couple of weeks before she first noticed jaundice. The immediate cause of death, as Dr. Smith suggested, was hemorrhage. The stomach and most of the upper intestinal tract were filled with liters of blood and a ruptured esophageal varix was easily located just at the base of the esophagus above the cardia.

DR JONES: It would seem that she had been

getting enough damage from a toxic substance to have gone through a course of subacute yellow atrophy probably without jaundice for some time before she actually developed the full clinical picture

OMISSION

In Case 21142, published April 4, 1935, the Presentation of the Case is incomplete. The remainder of the history is as follows

The temperature was 101.2°, the pulse 100. The respirations were 20

Examination of the urine showed a specific gravity of 1.012 to 1.018 with a trace of albumin. The sediment showed 2 to 3 white blood cells, 4 to 5 red blood cells and a rare granular cast. The red blood cell count was 3,220,000, with a hemoglobin of 70 per cent. The white cell count was 12,500, 72 per cent polymorphonuclears. An electrocardiogram was normal. A Hinton test was positive. A phenolsulphonethalein test showed 30 per cent excretion in ninety minutes, only 5 per cent of which was excreted in the first 15 minutes. The nonprotein nitrogen was 60 milligrams

X-ray examination of the chest showed high diaphragms, prominent hilus shadows and haziness in the right lower lung field. The heart was triangular in shape with a straight left border and some prominence in the region of the pulmonary conus

He was given digitalis, six grains a day for two weeks and then only one and a half grains a day for a week. He was discharged improved three weeks after admission

Third Admission, three months later

After being at home for five days he had a chill followed by a painful right knee. He rested for about two weeks, with complete relief. He continued to have edema of his ankles in the late afternoon and also shortness of breath. The red spots had remained on his legs for the past three months. There was no bleeding from the gums or nose. He had nocturia once a night but there had been no pyuria, dysuria or hematuria. For ten weeks he had had pain in his

legs on walking which was relieved by rest. There were no disturbances of vision or headaches. On the day of entry he developed more shortness of breath and became lethargic. During this period he had been working as an elevator operator eight hours a day and had been taking digitalis, one and a half grains daily

Physical examination showed a dyspneic and orthopneic man with a few small petechiae on both forearms, more on the right than the left. The legs from the groin down were covered with numerous petechiae and there was considerable redness of the intervening skin. The heart was enlarged to the left. The sounds were rapid and forceful. The first sound was loud. A systolic and a long diastolic murmur were heard at the apex. The blood pressure was 146/70. The liver was felt three fingerbreadths below the costal margin, and the spleen was just palpable. There was pitting edema of both legs. The fingers were slightly clubbed

The temperature was 98°, the pulse 112. The respirations 30

Examination of the urine showed a specific gravity of 1.020 and a trace of albumin. The sediment showed 20 to 40 red blood cells and 5 to 6 white blood cells. The red blood cell count was 2,600,000, with a hemoglobin of 60 per cent. The white cell count was 9,000, 74 per cent polymorphonuclears. The nonprotein nitrogen was 97 per cent. An electrocardiogram was normal. The phenolsulphonethalein test showed 25 per cent excretion in one hour, 5 per cent being excreted in the first fifteen minutes. Six blood cultures yielded no growth.

One week after admission he suddenly had a convulsion from which he could not be aroused for about fifteen minutes. His blood pressure was 160/90. He soon began to breathe more easily. No paralysis was noted. One hour later he complained of precordial pain and headache. Two days later his neck became stiff and Kernig could be obtained on both sides. A lumbar puncture was negative. His nonprotein nitrogen rose to 142. He rapidly failed and died on the twelfth day

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

COMMITTEE ON PUBLICATIONS

R. I. LEE M.D. *Chairman* HOMER GAGE M.D.
R. B. OSGOOD M.D. R. M. SMITH M.D.
F. H. LAHEY M.D.

EDITORIAL STAFF

REID HUNT M.D. STEPHEN RUSHMORE, M.D.
JOHN P. SUTHERLAND M.D. HANS ZINSSER M.D.
GEORGE R. MINOT M.D. BENJAMIN WHITE, PH.D.
FRANK H. LAHEY M.D. HENRY R. VIETS M.D.
SHIELDS WARREN M.D. ROBERT N. NYE, M.D.
GEORGE L. TOBEY JR. M.D. ROBERT M. GREEN M.D.
C. GUY LAND, M.D. CHARLES C. LUND M.D.
WILLIAM A. ROGERS M.D.

WALTER P. BOWERS M.D. *Managing Editor*

ASSOCIATE EDITORS

GEORGE G. SMITH M.D. WILLIAM B. BREED M.D.
JOSEPH GARLAND M.D.

THE NEW HAMPSHIRE MEDICAL SOCIETY

PUBLICATION COMMITTEE

CARLETON R. METCALF M.D. HENRY H. AMSDEN, M.D.
WARREN H. BUTTERFIELD M.D.

THE VERMONT STATE MEDICAL SOCIETY

PUBLICATION COMMITTEE

WILLIAM G. RICKIE, M.D. C. F. DALTON M.D.
L. H. ROSS M.D.

SUBSCRIPTION TERMS \$5.00 per year in advance postage paid
for the United States, Canada \$7.04 per year \$8.58 per year
for all foreign countries belonging to the Postal Union

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office, 8 Fenway.

The Journal does not hold itself responsible for statements
made by any contributor.

Communications should be addressed to The New England
Journal of Medicine, 8 Fenway, Boston, Mass.

The Massachusetts Medical Society

ANNUAL MEETING

THE SCIENTIFIC EXHIBITS

To the discerning visitor at the annual meeting of the Society, one of the most interesting institutions is the scientific exhibit, or rather, collection of exhibits. Through their wide diversity of subjects they offer something that is new to even the most erudite observer. Of no class of men can it more truly be said than of physicians that, "Knowledge is their stock-in-trade," and the knowledge offered by these exhibits is of the most useful kind, since it comes at first hand from the men best qualified to impart it.

This year at the Statler the scientific exhibits will be not only better, but better shown than in the past. No longer can they be relegated to some obscure bedroom on a back corridor, advertised by an amateurish arrow on a lump

cardboard sign. This year instead they will occupy the places of honor which by their importance they deserve.

Their diversity of subject is illustrated by only a few examples. Side by side with the surgery of thyroid disease, lung tumors, and cancer of the rectum will be exhibits dealing with lobar pneumonia, biological products, surgical treatment of pulmonary tuberculosis, and water and sewage purification. Nearby will be an exhibit of the problems and devices encountered in the treatment of fractures. Such dissimilar subjects as arteriosclerosis, industrial dermatitis, and the treatment of burns by anilin dyes will be exhibited within a few steps of the latest and most complete apparatus used in anesthesia. For the practical-minded there will be a demonstration of how the inside of the diseased stomach looks through the lens of a gastroscope, while those of a more imaginative nature will feel at home in an exhibit on sex hormones and endocrinology. The sensation-seekers will be furnished with an extraordinary collection of pathological curiosities and everyone will be impressed and fascinated by the triumphs of plastic surgery as recorded by photographs, drawings, and casts.

A feature of this year's meeting which will long be remembered is the very extensive exhibit, occupying two whole rooms and dealing with the various aspects of arthritis. This is a subject of great interest to medical men and of vital importance to the victims of this disease. Unfortunately, the solution of the problems involved is still in abeyance to a large degree but certain leads are being followed which may bring definite progress in knowledge relating to the etiology and treatment of the various manifestations of arthritis.

None of us can afford to miss the opportunity that will be provided by this most unusual exhibit.

A NEW FORM OF TREATMENT OF MENINGOCOCCIC MENINGITIS

FLEXNER's investigations in 1907-1908 demonstrated the value of an antimeningitis serum in the treatment of this serious disease. Prior to his work the death rate had been between 75 and 90 per cent and in some epidemics almost 100 per cent. Flexner's serum reduced this figure to approximately 50 per cent, where it has stood for about twenty years, being only slightly lowered as we have learned more about the causes of death. Although we now can use serum in a variety of ways, such as into the cistern and into the ventricles, unthought of at the time when Flexner developed his serum, and we have been able to classify the various types of organism, thus developing either a specific serum for a certain type or a polyvalent serum which will combat many types of the disease, still in a large

series of cases a 40 per cent mortality is considered good. For many years it has been anticipated that an antitoxin would be developed, thus overcoming one of the fatal elements in the disease. In the last few years such an antitoxin has been produced and recently Dr N S Ferry¹ and his coworkers of Detroit have succeeded in working out the bacteriological aspects of this problem satisfactorily.

The new antitoxin has been used clinically at the Cook County Hospital, Chicago. Dr A L Hoynes² is now able to report on its use in 85 of 296 cases taken for observation. By the use of this meningococcus antitoxin the death rate has been reduced approximately 50 per cent. Thus we have added to the drugs available in treating this often fatal disease what appears to be a new and important form of therapy.

REFERENCES

1. Ferry N S, and Steele A H. Active Immunization with meningococcus toxin. J A M A. 1941: 882 (March 1) 1935
2. Hoynes, Archibald L. Meningococcal meningitis. A new form of therapy. J A M A. 1941: 880 (March 3) 1935

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

SMITH, GEORGE GILBERT A.B., M.D. Harvard University Medical School 1908 F.A.C.S. Urologist, Massachusetts General Hospital Palmer Memorial Hospital, and Collis P Huntington Memorial Hospital. His subject is "Renal Infections." Page 751. Address 6 Commonwealth Avenue, Boston, Massachusetts.

GATES, OLIVE. A.B., M.D. Yale University School of Medicine 1929 Assistant Pathologist, Collis P Huntington Memorial Hospital. Address 695 Huntington Avenue, Boston, Massachusetts. Associated with her is

WARREN, SHIELDS. A.B., M.D. Harvard University Medical School 1923 Pathologist, New England Deaconess, Huntington Memorial, and Pondville State, New England Baptist and Robert B Brigham Hospitals. Consulting Pathologist, House of the Good Samaritan. Director, State Tumor Diagnosis Service. Instructor in Pathology, Harvard Medical School. Address 195 Pilgrim Road, Boston, Massachusetts. Their subject is "The Transplantation of Uninjured Tumor Cells." Page 759.

BUTLER, ALLAN M. L.B., M.D. Harvard University Medical School 1926 Faculty Instructor, Pediatrics Harvard Medical School Associate Physician Children's and Infants' Hospitals, Boston. His subject is "The Dietary Management of Diabetes at the Diabetic Clinic of the Infants' and Children's Hospitals, Boston, Massachusetts." Page 760. Address Children's Hospital, 300 Longwood Avenue, Boston, Massachusetts.

EMERY, E S., JR. See This Week's Issue, page 694, issue of April 11, for record of author. His subject is "Progress in Gastro-Enterology for 1934." Page 764.

CRAIG, WINCHELL McK. A.B., M.S., M.D. Johns Hopkins University School of Medicine 1919 F.A.C.S. Associate Professor of Surgery, Mayo Foundation University of Minnesota Medical School Neurological Surgeon, Mayo Clinic, Colonial and St. Mary's Hospitals. His subject is "Physiology, Pathology, and Treatment of Craniocerebral Injuries." Page 777. Address Mayo Clinic, Rochester, Minnesota.

The Massachusetts Medical Society

SECTION OF OBSTETRICS
AND GYNECOLOGY*

THOMAS ALMY M.D.

Chairman,
140 Rock Street,
Fall River Mass

O J KICKHAM M.D.

Secretary
534 Commonwealth Avenue,
Boston Mass.

DISCUSS FIBROIDS COMPLICATING PREGNANCY

ALTHOUGH patients with fibromyomata of the uterus frequently go through pregnancy, labor and the puerperium uneventfully the combination may cause troublesome and serious abnormalities.

Elderly primiparae and multiparae with a long interval between pregnancies are more prone to have fibroids. The uterus busy with reproduction rarely develops this type of tumor. Conversely, conception is often prevented by the growth and it is estimated that 30 per cent of women with fibroids are sterile. Myomectomy may restore fertility in some of these.

If pregnancy does occur, about 25 per cent result in abortion or premature labor. This allies fibromyomata with syphilis, the toxemias and abnormalities of the cervix in interrupting pregnancy.

As this may be the patient's only pregnancy, it should be safeguarded in every possible way by rest and the avoidance of operative interference unless absolutely indicated. The most frequent complication during pregnancy is necrobiosis or red degeneration. The growing uterus interferes with the blood supply to the tumor, so that central necrosis occurs. This causes pain often intense, over the site of the fibroid. There is usually a rise of one or two degrees of temperature and a slight leucocytosis. There may be flowing per vaginam. With rest and sedatives these symptoms frequently subside, permitting the pregnancy to progress to term.

A series of short selected articles by members of the Section will be published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the Section.

If, however, conservative measures are not effective, the tumor must be removed. Myomectomy may cause miscarriage, but as a rule it does not. On the contrary, in some of the writer's cases it undoubtedly *prevented* an interruption of the pregnancy. If these patients are otherwise normal, they may be delivered through the pelvis at term, as myomectomy, per se, unless very extensive, is not an indication for cesarean.

Rarely a large tumor will necessitate hysterectomy before viability, but usually even patients with large tumors can be carried to the eighth month or later so that a living child may be obtained. During labor, tumors of the fundus usually do no harm. They may interfere with uterine contraction.

In the lower uterine segment even small fibroids may cause dystocia by interfering with retraction. On the other hand some tumors are rendered innocuous by being drawn out of the pelvis during the first stage of labor. Rarely a subserous fibroid may be pushed up to permit pelvic delivery. However, if the neoplasm blocks the birth canal, the best interests of mother and baby are served by a cesarean myomectomy or hysterectomy before, or early in, labor.

At cesarean, fibroids, of any considerable size, should be removed. If they remain, degeneration, sepsis from interference with drainage, or subinvolution may occur. If the patient escapes these the growth may cause complications in future pregnancies, or necessitate another operation.

THE TREASURER'S REPORT

COVERING REFUND DISTRIBUTION

The treasurer of the Massachusetts Medical Society makes the following report regarding the refund to District Societies for 1935.

The Council voted to distribute the sum of \$5000 to District Societies. The total number of payments of annual dues received by the treasurer, for March 1st and to be counted for the refund, was 3279. Therefore the refund to the District Societies for each paid Fellow is \$1524.8.

The following table gives the number of payments in, and the refund to, each District.

District	Number	Reported	Paid	Check
Barnstable	36			\$54.90
Berkshire	78			118.95
Bristol North	53			80.83
Bristol South	146			222.63
Essex North	138			210.43
Essex South	168			256.18
Franklin	35			53.38
Hampden	198			301.93
Hampshire	41			62.53
Middlesex East	77			117.42
Middlesex North	101			154.02
Middlesex South	603			919.47

Norfolk	554	844.73
Norfolk South	70	106.75
Plymouth	94	143.35
Suffolk	518	789.84
Worcester	307	468.11
Worcester North	62	94.55
	3279	\$5000.00

In 1934, for comparison, the total number of payments for the refund was 3229.

CHARLES S. BUTLER, M.D.,
Treasurer

April 18, 1935

SECOND ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the Committee for the week beginning April 28.

Berkshire

Thursday, May 2, at 4:30 P.M., at the St. Luke's Hospital, Pittsfield. Subject: Dermatology and Syphilis. Albert C. England, M.D., George S. Reynolds, M.D., Chairmen.

Bristol South (New Bedford Section)

Friday, May 3, at 4:00 P.M., at the St. Luke's Hospital, New Bedford. Subject: Cardiovascular Disease (Third Session). Harold E. Perry, M.D., Chairman.

Franklin

Wednesday, May 1, at 8:00 P.M., at the Franklin County Public Hospital, Greenfield. Subject: Cardiovascular Disease (Third Session). Halbert G. Stetson, M.D., Chairman.

Hampshire

Wednesday, May 1, at 4:15 P.M., in the Nurses' Home of the Cooley Dickinson Hospital, Northampton. Subject: Surgery (Third Session). Robert B. Brigham, M.D., Chairman.

Norfolk (Norwood Section)

Friday, May 3, at 8:30 P.M., at the Norwood Hospital, Norwood. Subject: Obstetrics and Gynecology (Third Session). Hugo B. C. Riemer, M.D., Chairman.

Worcester (Milford Section)

Thursday, May 2, at 8:00 P.M., at the Milford Hospital, Milford. Subject: Obstetrics and Gynecology (Second Session). Joseph I. Ashkins, M.D., Sub-Chairman.

Worcester (Worcester Section)

Wednesday, May 1, at 7:30 P.M., in the Nurses' Home of the Worcester City Hospital, Worcester. Subject: Cardiovascular Disease (Second Session). Erwin C. Miller, M.D., Chairman.

Worcester North (Fitchburg Section)

Friday, May 3, at 4:30 P.M., at the Burbank Hospital, Fitchburg. Subject: Cardiovascular Disease (Third Session). Edward A. Adams, M.D., Chairman.

AN APPEAL TO THE DISTRICT MEDICAL SOCIETIES OF THE MASSACHUSETTS MEDICAL SOCIETY

The Massachusetts Medical Society has commanded the Public Relations Committee to institute a campaign of public education in the matter of the evils of Compulsory Sickness Insurance. This is in support of the American Medical Association and in accord with similar activities engaged in by many other state societies.

The Public Relations Committee cannot carry out this most important work without the help and active coöperation of all the districts. The Committee urges the immediate formation and organization of the District Public Relations Committees so that it may contact these groups and coöperate with them in the part which they will be called upon to play. The labors of the Committee will be much lightened and the progress of the work much advanced if the districts will form these public relations groups immediately and send their names to Dr. M. A. Tighe, 9 Central Street, Lowell, Mass., Chairman of the Sub-Committee on Social Legislation and Insurance.

Dr. William H. Robey, President of the Massachusetts Medical Society, has already addressed the District Societies on this matter.

M. A. TIGHE, M.D.,

Chairman of the Sub-Committee

MISCELLANY

NEW MOLD MAKES SARCOLACTIC ACID

Another mold has been harnessed and put to work by chemists in the U. S. Department of Agriculture. This one is a species of *Rhizopus* and a relative of the common bread mold. When properly fed and cared for this *Rhizopus* produces sarcolactic acid, a component part of ordinary lactic acid, the acid found in sour milk. Work which led to the discovery of this mold was described recently before the American Chemical Society in New York, in a paper by G. E. Ward, L. B. Lockwood, O. E. May and H. T. Herrick, of the Bureau of Chemistry and Soils.

Sarcolactic acid derives its name from the fact that it was originally prepared in 1808 from animal flesh which is still one of the principal sources. It is found in small quantities in the human body and plays an important part in human metabolism—the process by which the body converts food into fuel and energy. Because of limited sources heretofore available sarcolactic acid has been very hard to get in quantity in pure form and difficulties encountered in its preparation have held the price near a dollar a gram. With the new molds at work indications are that this price can be materially cut, thus making pure sarcolactic acid generally obtainable for physiological and industrial investigations.

Heretofore the only lactic acid produced industrially has been the inactive form which is manufactured by the bacterial fermentation of starch

The sarcolactic acid which has been made in the laboratory up to the present time has usually contained impurities. The new process now being developed in the Department gives relatively high yields of a pure product.

Discovery of the mold that makes sarcolactic acid is an outgrowth of a study begun in 1926 of the application of molds to the utilization of farm products. Other molds have been found for making gluconic and kojic acids.—U. S. Department of Agriculture.

NEW ENGLAND HEALTH OFFICERS MONTHLY STATEMENT OF VENEREAL DISEASES REPORTED FOR FEBRUARY 1935

This statement is issued monthly for the information of health officers in order to furnish current data as to the prevalence of the venereal diseases. The following reports were received from State Health Officers. The figures are preliminary and subject to correction. It is hoped that this will stimulate more complete reporting of these diseases.

State	Syphilis		Gonorrhea	
	Cases Reported During Month	Monthly Case Rate per 10,000 Population	Cases Reported During Month	Monthly Case Rate per 10,000 Population
Connecticut	192	1.17	117	7.1
Maine	42	.52	35	.44
Massachusetts	378	.88	360	.83
New Hampshire	5	.11	70	.43
Rhode Island	64	.91	58	.82
Vermont	21	.68	19	.53

—Treasury Department Public Health Service

PREPAID HOSPITALIZATION

The Weymouth (Mass.) Hospital has arranged to provide service for three weeks on payment of fifty cents per person per year, or such as may be accepted by the hospital trustees. This is only about four cents a day.

Seventy-four institutions in New York have arranged for group hospital care of wage-earners in the low income brackets at the rate of three cents a day. It is predicted in the announcement that, within a few years, more than one million contributors will take advantage of this plan with more than one hundred hospitals coöperating.

THE APPOINTMENT OF FREDERICK F. RUSSELL

Frederick F. Russell, the general director of the International Health Board of the Rockefeller Foundation from 1923, will be lecturer on preventive medicine and hygiene and epidemiology at the Harvard Medical School for one year beginning next September according to the *Boston Herald*.

AWARD OF FELLOWSHIPS AND SCHOLARSHIPS

The award of nineteen fellowships and scholarships for the academic year 1935-1936 to students in the Harvard Medical School has been announced

The total monetary consideration for these awards is \$16,475

Ten residents of Boston are recipients of ten of these awards. This shows how the Harvard Medical School stands in relation to deserving students who may profit by financial assistance

CORRESPONDENCE

ARTICLES ACCEPTED BY THE AMERICAN
MEDICAL ASSOCIATION

COUNCIL ON PHARMACY AND CHEMISTRY

Editor, *New England Journal of Medicine*,

In addition to the articles mentioned in our letter of February 28 the following have been accepted

The Calco Chemical Co

Aminoacetic Acid

The Cutter Laboratory

Diphtheria Toxoid Alum Precipitated, Refined
Lederle Laboratories, Inc

Scarlet Fever Streptococcus Immunizing Toxin

Scarlet Fever Streptococcus Toxin for the Dick
Test

Eli Lilly & Co

Metycaine Tablets, ½ grain

Ophthalmic Ointment Metycaine, 4 per cent

Parke, Davis & Co

Capsules Oral Sodium, 5 grains (0.3 Gm)

Meningococcus Antitoxin

E R Squibb & Sons

Ipral-Amidopyrine Tablets, 4.33 grains

Ipral Sodium

Ipral Sodium Tablets, 4 grains

Yours sincerely,

PAUL NICHOLAS LEECH, *Secretary*
Council on Pharmacy and Chemistry

MEDICAL ORTHOEPY

April 5, 1935

Editor, *New England Journal of Medicine*,

To-day public speaking is becoming almost as important to the physician as to the lawyer. Among the medical words too commonly incorrectly pronounced by many of us are the following

Cerebrum and cerebral with the accent on the first syllable

Cocci with the third c soft

Digitalis with a long a

Fibrillation with the first i long

Phthalein with the first consonant digraph, ph, preferably silent and the last two vowels pronounced separately

Phthisis as if spelled thisis

Phthisic and phthisical as if tiz ic and tiz i-cal, respectively

Rabies with the a long and three distinct syllables

Rabid with its a short.

Urea and urease with the stress on first syllable.

Ureter with it on the second

Urethane with the accent on the second, ureth'ane

Vertebra and vertebral, like the first two words in this list, accented upon the first syllable

Some of the older men fail to use the preferred pronunciation of abdomen with the accent on the penult and paresis with its accent on the ante-penult. Others forget that the first i in the suffix itis is always long in such words as bronchitis as well as appendicitis

Yours truly,

G W HAIGH, M D

242 Burncoat Street,
Worcester, Mass

EDITORIAL NOTE The pronunciation of medical terms does not always agree in the several medical dictionaries. The American Illustrated Medical Dictionary (Dorland) in some instances is authority for other pronunciations than those cited above

COOPERATION OF MEDICAL AND
PSYCHOLOGICAL PROFESSIONS

WARREN STATE HOSPITAL
WARREN, PA.

April 4, 1935

Editor, *The New England Journal of Medicine*,

After reading your editorial in the issue of March 28 entitled "Psychologism and Medicine" I cannot refrain from letting you know that I, for one, think that your attitude toward the profession of psychology is somewhat biased and your attack unwarranted. I challenge you to find a reputable psychologist who will not agree that a person untrained in medicine is unqualified to "determine the physical condition of the sufferer." Let me assure you that no psychologist who hopes to gain the respect of his own profession will take upon himself work which belongs within the field of medicine or any other specialty in which he does not happen to be qualified. Only a very small percentage of the eighteen hundred members of the American Psychological Association are professionally interested in healing or psychotherapy. Most of these are working either with or under the direction of psychiatrists, and you will find that they are well oriented in their professional relationships.

The principal reason for the present correspondence is that it is my firm conviction that both the medical and psychological professions could benefit from a little better mutual understanding and cooperation. You assume that we are unversed in the biological aspects of man. We readily admit this, but we do not underestimate their importance and we respect you for your knowledge. To the psychologist, however, the medical practitioner is notoriously unversed

in the human individual as anything but a biological being. As long as you continue to think of a large and respected scientific organization as made up of "mere psychologists" you will no doubt continue to think of man as made up of "the body and the psyche." You will fail to learn that the so-called professional psychologists" gave up this viewpoint years ago in favor of the conception of man as an organism, both biological and psychological functioning, developing and behaving in response to and in interaction with the environment in which he finds himself.

Yours very truly

HARRY C. MATIAN *Staff Psychologist*

RECENT DEATHS

GOODALL — HARRY WYFRED GOODALL, M.D. of 1 Raleigh Street, with an office at 51 Bay State Road Boston, died April 17 1935 after an illness of several months. He was born at Wells Maine in 1876 the son of George B. and Isabel M. (Norton) Goodall.

His premedical education was acquired at Berwick (Maine) Academy and at Dartmouth College taking his A.B. degree in 1898 with honors and was a member of Kappa Kappa Kappa. He graduated from the Harvard Medical School, *summa cum laude* in 1902 and served an internship at the Massachusetts General Hospital and later at the Boston Lying In Hospital. He was also assistant resident physician at the Massachusetts General Hospital. He studied at the University of Tübingen Germany in 1908. He lectured on digestive diseases at the Dartmouth Medical School and was instructor in Chemistry at the Harvard Medical School for a time.

His hospital associations were with the Boston Dispensary New England Baptist, Peter Bent Brigham, Phillips House New England Deaconess, Palmer Memorial Chelsea Memorial Burbank Hospital Fitchburg Symmes Hospital Arlington Sturdy Hospital Attleboro Framingham Hospital Home for Aged Couples Roxbury in several of which he acted as chief.

He began his military service as major in the Army Medical Corps in 1917. After serving at Camp Greene, N. C., and Camp Wheeler Ga., he went overseas in August 1918. He was commissioned Lieutenant-Colonel August 9 1918. He served as commanding officer of the gas hospital at Toul, France, and chief of the medical service at a base hospital until the close of the war. He was cited for meritorious and distinguished service.

He was the author of several important contributions to medical publications.

He joined the Massachusetts Medical Society in 1904 and was a member of the Council. His other Society memberships include the American Medical Association and the American College of Physicians. He was a member of the Masonic Fraternity the Military Order of the World War the Harvard Club and the Square and Compass Club.

Dr. Goodall is survived by two brothers George E. of Wellesley and Frank R. of Exeter N. H., and two step-children Edward W. Pierce and Mrs. Polle Pierce Thompson of Concord, N. H.

MARTIN—HAROLD WINTHROP MARTIN M.D. of 60 Ridge Street, Milton with an office at 106 Warren Street, Roxbury died at his home April 15 1935. He was born in Boston in 1887 the son of John and Mary (Kohlman) Martin. He graduated in medicine from the Tufts College Medical School in 1912.

Early in life he was prominent in athletic fields. He maintained practice from 1914 until obliged to retire because of a long illness. He joined the Massachusetts Medical Society in 1913 and was also a Fellow of the American Medical Association. He was a member of the Washington Lodge and Mt. Vernon Royal Arch Chapter of the Masonic Fraternity and the Quinnoquebin Lodge of Odd Fellows.

Dr. Martin is survived by his widow Mrs. Mildred Harlow (Cook) Martin two children, Virginia Martin and Winthrop Martin two brothers, Dr. Edward Martin of Roxbury and John Martin of Wingdale New York, and a sister Mrs. Marion Robinson of Somerville, Massachusetts.

CURLEY — GEORGE FREDERICK CURLEY M.D., died suddenly from cerebral hemorrhage at his home 10 Congress Street, Milford Mass., April 15 1935.

Dr. Curley was born in Upton, Mass., in 1872, and received his early education there. He was graduated from Massachusetts State College in 1892 and from Jefferson Medical College in 1896. He interned at Elizabeth General Hospital Elizabeth, N. J., for a year and began practice in Milford in 1897.

He was appointed on the surgical staff of Milford Hospital when the hospital was opened in 1903 and served until his death faithfully and well. He was Medical Examiner of the Sixth Worcester District, and a member of Thurber Medical Association Massachusetts Medical Society and American College of Surgeons.

He is survived by his daughter Regina, wife of Dr. John W. Gahan of Medford one grandson John George Gahan and three brothers Dr. Alfred J. Curley of Milford William P., of Kearney N. J., and Robert M., of Biddeford, Me.

NOTICE

BOSTON UNIVERSITY SCHOOL OF MEDICINE
SURGICAL CLINIC AT THE BOSTON CITY
HOSPITAL

Friday May 10 121 Cheever amphitheatre.
Dr. Tracy J. Putnam Professor of Neurology at the Harvard Medical School and Visiting Neurologist at the Boston City Hospital, will discuss "Head Injuries."

Physicians and medical students are invited.

REPORTS AND NOTICES OF MEETINGS

WILLIAM HARVEY SOCIETY

Dr Percy S Pelouze gave an amusing and instructive lecture on "Neisseriana" at a meeting of the William Harvey Society held on March 8 at the Beth Israel Hospital. Dr Harold A Chamberlin presided. Doctor Pelouze stressed the fact that more medical interest is needed in this important subject, and said that he would present his ideas which he has tried to put on a scientific basis. By a series of slides he showed the high prevalence of both gonorrhea and syphilis in hospitals, as compared with other communicable diseases. The fact that in some cities of the United States druggists treat well over twice as many cases of gonorrhea as do physicians is startling, and on a questionnaire sent out to the young men of these cities it was found that many more of them would seek advice from the druggist than from the doctor, for the treatment of this infection. These facts demonstrate the necessity of increased activity on the part of the physician with regard to the handling of this disease.

Gonorrhea is not a surface condition, and surface bactericides will not kill the organisms. The patient is cured only by building up an immunity within himself, and while physicians may stimulate this process, they may definitely hinder it. Slides were shown demonstrating that the gonococcus infiltrates deeply into the tissues, and that it has certain characteristics of penetration, in particular that it cannot go through squamous epithelium or columnar epithelium over which there is a cuticular layer. It does penetrate simple columnar epithelium as well as transitional epithelium, especially that type which tends to stretch easily. However, transitional epithelium usually sets up a fairly rapid immunologic process, and the response to the infection is good. Because of these characteristics of penetration we may look for the gonococcus in the male chiefly within the urethra and the glands communicating with this structure as well as the prostatic gland.

Infection of a free surface will recover if left alone and glands which have free drainage will also heal, but glands the neck of which become infiltrated are apt to become partially occluded, so that the drainage is intermittent and the infection becomes chronic. If the gland becomes entirely closed off, lytic sterilization occurs and this process is what usually happens in salpingitis. Racemose glands such as Cowper's and Bartholin's glands usually become abscessed when infected because of poor drainage. In the cervix the glands are of the tubular type, and it is very difficult to clear up an infection here unless the entire gland area is destroyed. The prostate is made up of very intricate glandular structures, but gonorrheal infection here does clear up.

The individual develops immunity only to that

specific type of gonococcus with which he is infected, and this immunity is definitely hindered either by sexual excitement, not necessarily intercourse, or by alcohol. It is to be remembered that the patient will get well of his own accord, but the doctor can be of definite assistance to him, and the speed with which he recovers under proper treatment will be directly proportional to the care with which he follows instructions. New proprietary treatments are often successful at first because of the special interest of the patient, and it is only after the novelty wears off that both physician and patient lose their interest, and at the same time the therapy loses its efficiency. Strong penetrating chemicals cause complications and mild treatment is definitely indicated. Doctor Pelouze believes that the reason that stricture is much less frequent than it used to be is that the treatment is less severe at present. Diet seems to have little importance in the treatment of gonorrhea.

In the male the course of this disease can be easily followed and a physician to treat the condition intelligently must understand the different courses that it may take. The amount of pus is a direct index to the amount of infection, but it must be remembered that the urine clears long before the gonococcus is gone, and that the disease has a steady trend toward latency. Doctor Pelouze charts urine trends as one would chart a temperature, and by knowing these trends he shows accurately the course of the disease. In an untreated anterior infection the first glass is cloudy and the second glass is clear until about the eleventh day at which time there is a long steady line of decline toward the normal which is reached by about the twenty-fifth day. Any sharp upshoot of the urine generally means some "mucosal insult", such as alcohol or sexual excitement. In the posterior urethral infection both glasses are cloudy at first and there is then a steady decline toward normal. By knowing these untreated courses the effectiveness of one's treatment is easily gauged. Several charts were shown demonstrating these facts and the results of both poor and good treatment were shown.

Invariably the use of vaccine causes a sudden rise in the urine chart, and there is good evidence that such therapy is of no value. After the first or second prostatic massage there is apt to be a reaction shown in the urine chart which does not show with further massaging. There are few complications if the patient behaves and the physician is gentle. It is very difficult to control dispensary patients, but office patients are usually easily regulated. The patient must be told the facts and what he can expect if he does not assist the doctor. The condition is one hundred per cent curable in the male, but in the females they infect, dire consequences may ensue. It is a crime that the public pays so little attention to this dangerous and prevalent disease, and it is hard to understand why national radio hookups prevent any mention of syphilis and gonorrhea, considering the sort of moving pictures that are released. Thirty per cent of

urethral discharges are not due to the gonococcus and it is important that the physician examine the discharge microscopically.

It does not matter so much what is used in the treatment as how it is used. Oral urinary antiseptics and vaccines and gonococcus filtrates have been discarded by Doctor Pelouze for the most part, and we do not know how to produce immunity. Simple mild local applications are of definite benefit.

In the discussion that followed Doctor Nelson said that he was very much pleased to think that the William Harvey Society was showing a real interest in gonorrhea. Doctor Riley stressed the importance of a microscopical examination of the discharge, the uselessness of sandalwood oil and vaccines. Medical schools do not spend enough time stressing gonorrhea. He feels that strictures are due to infections about the urethra in the glands rather than simply to strong antiseptics. Doctor Sawyer said that the physician must be willing to give his whole-hearted attention to the condition or else send his patients to those who will. Doctor Chamberlin asked what was the usual percentage of posterior involvement in his patients.

Doctor Pelouze pointed out that he based his opinion on strictures in the pathological picture in that the polymorphonuclear cells which are seen in gonorrhea do not cause scar tissue while irritating solutions stimulate the increase of mononuclear cells which do cause scar tissue. In a large group of patients taken without selection seventy-five per cent showed posterior involvement but if we choose those patients seen by the fifth day of the disease only fifteen per cent show this extension. In those seen after the fifth day almost one hundred per cent have or will have posterior involvement. This shows the necessity of early mild treatment. The gonococcus complement fixation test as used in the diagnosis of gonorrheal arthritis is of definite evidence if the laboratory is skilled in the use of this test. Doctor Pelouze feels that a great deal of arthritis is said to be due to the gonococcus simply because there is a history of past infection and it must be remembered that anybody with a chronic arthritis will have a definite recurrence if there is a posterior urethral infection.

MEDICAL CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

Dr Henry A. Christian presented a series of patients with pulmonary conditions at his Thursday afternoon clinic on the seventh of March. The first case was a forty-six year old Russian woman who entered with a story of six weeks severe cough and pain in the left lower thorax posteriorly. The onset was sudden while the patient was eating soup and she had the sensation of a bone going down "the wrong way". Following this episode there had been almost constant cough and some vomiting. A few days later there was pain in the left lower thorax posteriorly particularly when she coughed.

Gradually the cough became productive and at the time of entry she was raising from one to two cups of greyish green sputum a day which left a bad taste in her mouth. On entry she was flushed and slightly cyanotic. Posteriorly in the left lower thorax there was slight dullness and decreased breath sounds. The history in this case is typical of a foreign body in the bronchus and although such accidents usually occur on the right side left-sided foreign bodies are not infrequent. The proper diagnostic procedure is bronchoscopy. X-ray examination is not necessary with so clear a history and definite physical signs indicative of an obstructed bronchus although it may be confirmatory if convenient.

In this case about two days after bronchoscopy which simply showed evidence of inflammation on coughing she expelled a bit of bone. By x-ray there was a question of a shadow of a foreign body with surrounding consolidation. The pulmonary process in this condition is a combination of inflammation (bronchitis and pneumonia) with atelectasis. The physical signs are often more helpful than x-ray examination in such cases but x-ray taken in both inspiration and expiration may be of distinct value when the foreign body is not opaque to x-rays and atelectasis and pneumonia are not present, because the air is not so easily forced out in expiration on the involved side. When a peanut is the foreign body much inflammation ensues. Doctor Christian stressed the importance of waiting a few days after bronchoscopy to see whether the foreign body may not be coughed up and being sure whether the patient is telling the truth before we disbelieve the story. Many cases of pulmonary foreign body have been missed because doctors do not believe the patient's history. In cases of pulmonary dermoid cysts the patient is apt to cough up hair and physicians are very reluctant to believe this story which in itself is diagnostic, particularly if the hair is of a blond color and differs from that of the patient.

The second case was a fifty-nine year old Chinese man who entered with a story of loss of weight and strength for seven months having lost twenty-three pounds in three months although he had regained some of this. At night he had drenching sweats and on entry he was emaciated had a palpable liver and spleen, and one side of the chest was entirely flat to percussion. His chart showed a zigzag temperature ranging from normal to one hundred and one. There was generalized slight enlargement of the lymph nodes. The chest was tapped on two occasions and less than a litre of fluid removed each time, and on the second occasion an artificial pneumothorax developed. Following this procedure x-ray showed adhesions at the apex and two pockets of fluid. The entire left lung and the apex of the right lung were apparently normal. The chest fluid had a specific gravity of 1.015 and twenty-eight hundred red cells and seven hundred and thirty white blood cells with a differential which the first time showed twenty polymorphonuclear cells and eighty lymphocytes but the second time this proportion was reversed.

The diagnosis of this case is probably either tuberculous pleural effusion or neoplasm, possibly of the lymphoma group because of the temperature and enlarged liver and spleen, although many Chinese have chronically enlarged spleens from an old malaria. Biopsy of a lymph node showed only slight hyperplasia.

The third case was that of a sixty six year old Negro who entered with progressive dyspnea. Three and a half years ago he had a questionable attack of pleurisy which has been repeated on several occasions. He has gradually grown weaker and was forced to give up his work three months ago. For two months he has had a cough and a blood streaked sputum, and he noticed that the cough tended to be more severe if he lay on his left side. There were no abnormal physical signs except dullness and decreased sounds in the right chest and the left lung seemed hyperresonant. Fifteen hundred cubic centimeters of bloody fluid with a specific gravity of 1.010 was removed from the right chest. By x ray after the chest tap the trachea was displaced to the left and a mass was visible on the right side. The probable diagnosis is bronchiogenic neoplasm or a tumor of the mediastinal nodes of the Hodgkin's group.

The fourth case was a man who had an acute upper respiratory infection in the spring of 1933 since which he has felt weak, and he has had dyspnea and cough on exertion for the past eight months. He complained of night sweats and a loss of twenty-five pounds, together with a slight hemoptysis on two occasions. At a tuberculosis sanatorium a questionable apical haziness was found and later he was sent to the Peter Bent Brigham for diagnosis. On entry there was hyperresonance and a few râles at the left base. The right lung below the seventh rib posteriorly was flat, and the breath sounds and tactile fremitus were diminished. The above history suggests a slowly developing pulmonary process and x ray showed a small amount of fluid and a mass in the lower lobe on the thirty first of December. On January 6 a fungating mass which suggested neoplasm was found on bronchoscopy. A biopsy suggested a lymphocytic type of neoplasm and the lesion was given x ray therapy, which apparently caused it to diminish in size and density, although on the present admission it seemed to have gained in size.

Doctor Christian closed his clinic by discussing one of his private patients, a sixty four year old woman who at the time he saw her had been ill for six weeks. She was easily upset emotionally and very apathetic and had a fever up to one hundred and one and a half degrees in the evening. Physical examination and laboratory tests were entirely negative and x ray examination in mid December showed a questionable increase in the hilar density. She entered the hospital the third of February with fever and an enlarged liver, as well as evidence of slight pleural fluid on both sides. This fluid was removed, clotted quickly, but showed no abnormal cells. At this time x ray examination disclosed a

distinct rounded hilar mass probably a primary bronchiogenic neoplasm and this was confirmed subsequently at autopsy. Doctor Christian pointed out that in this case at first the continuous fever was the only pathological finding, while the positive x ray shadow did not show until some time later. Fever is often an outstanding characteristic in pulmonary tumors, as illustrated by these patients.

PLYMOUTH DISTRICT MEDICAL SOCIETY

A stated meeting was held at the Plymouth County Hospital, South Hanson, March 21, 1935. The subject of the program presented by the Staff of the Hospital was "The Surgical Treatment of Pulmonary Tuberculosis".

Dr B H Pierce, Superintendent, briefly outlined the present policy, which was inaugurated about three years ago, of having the cases requiring surgical treatment operated upon at the hospital. He then introduced the speakers.

Dr John McCarthy discussed artificial pneumothorax, describing its indications, technic of administration, complications and results. He stressed the fact that pneumothorax is in general more effective in early cases, as adhesions are less frequently encountered, the lung is more elastic and responds to pressure better than in the late cases. Adhesions, fibrosis and thickened pleura frequently render ineffective attempts to compress the lung in the late cases.

Dr E K. Jenkins was then introduced and reported a case of long-continued, profuse hemoptysis which was revived from an almost moribund state by the use of adrenalin. At a later date this patient had a phrenic avulsion which has apparently been a factor in the prevention of hemorrhage and resulted in considerable improvement.

Dr Roy Littlehale presented a statistical study of the surgical work at the Plymouth County Hospital. At present approximately eighty per cent of the patients receive some form of surgical treatment, either pneumothorax, pneumolysis, phrenic nerve operations or thoracoplasty. Pneumothorax is the most common surgical treatment, one hundred and three patients having been treated by this method with twenty nine arrested cases. In sixty one of these patients, adhesions prevented satisfactory collapse. Of fifty patients having a phrenic exeresis or a temporary paralysis, thirty six were definitely improved. In four cases unsatisfactory compression of the lung was due to adhesions which were severed by internal pneumolysis with resulting collapse of the lung. Six patients have been treated by thoracoplasty, the operation being done in two or more stages.

Dr G A Moore discussed briefly the three more definitely surgical procedures employed in pulmonary tuberculosis, phrenic operations, pneumolysis and thoracoplasty. The indications, technic and results of the different operations were described, emphasizing the fact that at the Plymouth County Hospital, pneumothorax or phrenic operations were

the first procedures employed in practically all of the cases treated surgically. Internal pneumolysis was done only in cases in which definite bands were demonstrated by x-rays as the possible cause of persistent cavitation unsatisfactory collapse and positive sputum after thorough trial of pneumothorax. The technic of the operation was then demonstrated upon the skeleton with an artificial lung and adhesions.

The indications for thoracoplasty at the Plymouth County Hospital were presented in some detail as it has been felt that the men in general practice and especially sanatorium patients may have a rather unwarranted enthusiasm regarding the benefits from the operation except in selected cases. The statistics presented by Dr. Littlehale show that a conservative attitude with regard to thoracoplasty has been adopted at the hospital.

It was emphasized that the shortened convalescence in the surgical cases at the hospital had resulted in a general improvement in the mental state and enthusiasm in other patients. As a result it has been necessary frequently to deny operation to many patients who seek it.

Moving pictures illustrating the technic of pneumothorax and thoracoplasty were shown by Dr. Pierce. Lantern slides were exhibited depicting the lung pathology on admission and the results obtained by pneumothorax, phrenic operation, pneumolysis and thoracoplasty with a demonstration of the patient.

GEORGE A. MOORE, M.D., Secretary

ADVENTURE IN TROPICAL MEDICINE

Dr. Richard P. Strong delivered a most interesting lecture at the Harvard Medical School on the fifteenth of March under the auspices of the Phillips Brooks Association. Doctor Strong has recently returned from a scientific expedition to Africa, and spoke on "Adventure in Tropical Medicine." He pointed out that work is at the bottom of every successful adventure in medicine and that chance in scientific investigation seldom favors the man that is not prepared," as Pasteur once said. Haphazard adventure seldom leads to success. Expeditions must be planned carefully and intelligently; those in charge must have the proper training and although imagination is a great asset, it must always be carefully controlled and is secondary to preparation and training.

Doctor Strong spoke briefly of some of the successful adventures that investigators have had with regard to the discovery of the way in which diseases are transmitted through insects. Sir Patrick Manson first showed that the *Microfilaria bancrofti* causing the disease known as filariasis together with its common complication elephantiasis is transmitted by the mosquito. Laveran, a French army surgeon, discovered the malarial parasite while Ross, working in India, demonstrated that other species of mosquito transmit this disease also. Ross was a mathematician and a poet as well as a physi-

cian. Reed and his associates in Cuba first demonstrated the method of transmission of yellow fever by the use of human volunteers. Yellow fever and dengue fever are both transmitted by the same species of mosquito. General Gorgas led the public health work which rid the United States and the Panama Canal Zone of the most dangerous diseases transmitted by mosquitoes. Bubonic plague is caused by a bipolar staining organism which is transmitted by rat fleas from rats to man. This was especially urged by Ogata in 1897. A different form of the plague, the so-called pneumonic plague, destroyed one-fourth of the earth's population in the fourteenth century. Another epidemic of this same type of plague attacked Manchuria in 1910 and Doctor Strong was a member of the expedition sent to study this disease. In the bubonic type rats must be controlled and there is usually no infection from man to man but in the pneumonic type direct droplet infection occurs and, therefore, its control rests especially on the early detection and isolation of the cases, the evacuation of infected areas and the use of masks. In this disease the alveoli are filled with organisms and the cases are invariably fatal.

Nicolle in 1910 demonstrated that a certain species of louse transmits typhus fever as well as relapsing fever and in 1915 the Rickettsia bodies were shown to be the etiological agent in typhus fever. Recent investigations on a modified form of this condition, so-called Brill's disease, which occurs in this country have suggested that the rat flea may transmit the agent. The transmission of trench fever by *Pediculus humanus* was proved during the World War. It had the greatest morbidity of any disease in the British Army. Theobald Smith in 1893 demonstrated that the tick transmits Texas fever. This was the first discovery which showed that an arthropod could transmit a protozoal disease.

In Onchocerciasis, a disease transmitted by flies, there are subcutaneous fibroid nodules on the trunk or about the knees or elbows in the African form while in the Guatemalan form these nodules usually occur about the head, and ocular complications are common. In Guatemala the disease was carefully studied by a commission sent down from Harvard. It occurs only on the Pacific or southern slopes of the western volcanic mountains at an altitude of between twenty-two hundred and forty-five hundred feet. The vegetation is tropical or subtropical and the topography irregular and there are numerous ravines at the bottom of which flow swift streams where the flies that transmit this condition breed freely. The inhabitants are descendants of the Mayans and coffee is the important industry. While working in the coffee fields the people are especially exposed to the bites of these flies. In some villages as high as sixty-six per cent of the population were infected while five per cent of the wild flies were infected. The small tumors range from two millimeters to five centimeters in diameter and are often from one to six in number. They occur on men, women, and children and are fibromata made up particularly of bundles of wavy collagen.

fibres The adult parasites are in the middle of the tumor where the male and female individuals breed, and millions of microfilariae are poured into the lymph every day from these focuses There are sometimes slight xerodermatous changes in the skin, as well as slight pigmentary alterations, and the microfilariae may be found in the subcutaneous tissues In the eyes they cause particularly a peri corneal conjunctivitis, keratitis, and iritis Occasionally there is an infiltration of the optic nerve which causes total blindness Microscopically the organisms can be seen throughout the cornea, and there is an infiltration around the vessels of the structures of the eye

In 1926 the black fly was shown to transmit the African form of this condition, and this was confirmed in Liberia by the Harvard Commission. In Guatemala the Harvard Commission showed that three species of flies may transmit the disease These breed on the rocks and grasses in the swift streams They become infected when they bite an individual sick with the disease The organisms are taken directly to the stomach of the insect from which they migrate within two days to the thoracic muscles, and here they get thicker and lose their motility for a short while, but soon after moulting become slender and motile again and migrate to the head and proboscis of the fly, and when the fly bites man, they escape via the proboscis to enter through the skin The treatment consists in the early detection and removal of the subcutaneous tumors In the town of Moca, the Commission was able to cut the number of infected from forty per cent to four and one-half per cent in two years and the wild fly infection from five per cent to one per cent Many slides were shown to demonstrate these points

The same form of the disease occurring in one region of Africa was recently studied by the Harvard Commission, and moving pictures were shown of some of the work done there Here, too, are ravines with streams running through them which act as breeding places for the species of fly that transmits the microfilariae In some areas almost every native was found to be infected with the disease, and many were blind from it in the village where most of the work was done. A laboratory and clinic were established for the study, diagnosis, and treatment of the condition The diagnosis of infection may be made by section and microscopical examination of the skin, and often small pieces of conjunctiva are used After the eye lesions have once seriously interfered with vision, it cannot be restored Thirty three per cent of the wild flies in this region were infected These flies prefer to bite in the shade and often infect the natives working in the cotton fields when they go for their water or when they are swimming The treatment here is likewise the removal of the tumors, but many of the patients were so heavily infected, carrying from one hundred to two hundred nodules, that it was practically impossible to rid them of the disease When there were only a few they were removed easily with novocaine A study was made to see if a

mammalian intermediate host existed for the disease Parasites were found in practically all of the wild animals studied, and Doctor Strong noted that wart hogs as on previous occasions were infected with echinococcus cysts Eland antelope and further south fifty per cent of the cattle were found to be infected with Cenchocerea.

Bibanga is a center of sleeping sickness Moving pictures were shown of the different stages of the disease In the third stage the victims become emaciated and sometimes maniacal, so that their feet must be put in locks to restrain them They rarely live more than one year in this stage In the earlier stages the symptoms are fever, chills, and head ache, and somewhat later the patient becomes depressed and markedly lethargic so that he is apt to fall asleep even in the blazing sun Hyperesthesias and sore muscles are common The treatment of this condition consists of weekly injections of try parsamide for twelve doses Some of the natives are trained to do this work as well as to examine the blood for diagnosis or to do lumbar punctures in the later stages

Moving pictures of a camp of lepers in this same town were also shown There are five hundred of them, and all forms of the disease are found here They are treated with chaulmoogra oil and its esters

BOSTON SOCIETY OF BIOLOGISTS

A meeting of the Boston Society of Biologists was held on March 20 at the library of the Children's Hospital Dr George B Wislocki presided The first speaker of the evening was Dr Harold L Weatherford who spoke on "The Influence of Anaphylactic Shock on the Finer Structures of the Liver in the Dog" After he had sensitized his dogs with egg albumen over a period of three weeks he inserted a glass cannula into the thoracic duct in order to measure the rate of flow of lymph, before and after the final injection of the protein In the sensitized animals there is a period of primary shock following the injection of the protein to which they have been sensitized Following this there is secondary shock Histological study of the liver showed in primary shock an acute congestion of the organ The sinusoids and central veins become dilated, and there is a marked increase of lymph flow up to as much as eight and a half times the normal The maximum effect on lymph flow occurs in about fifteen minutes after the injection There is a marked dilatation of the lymph vessels in the liver In primary shock, the liver parenchyma shows only slight cloudy swelling and other minor changes, but in secondary shock there is marked damage of the hepatic cells with typical cloudy swelling, granular degenerations, and free hepatic cells are frequently detached and seen floating in the sinusoids and central veins Later there is a hydropic necrosis of cells with hyaline degeneration and a complete dissolution of nuclear elements The endothelial lining is pushed away and occasionally broken There is

definite infiltration with numerous polymorphonuclear cells some lymphocytes and occasional histiocytes. The Kupffer cells become vacuolated and some of them heavily pigmented. Frequently whole erythrocytes may be seen not only within the Kupffer cells but in the bodies of the hepatic cells in the centers of the lobules.

In primary anaphylactic shock the mitochondria becomes swollen and vacuolated and may be completely lost in the central part of the liver lobule. In the secondary and more severe type of shock there is a complete loss of mitochondria in the central part of the lobule and in the inner part of the midzone. Throughout the lobule groups of dark cells are occasionally seen which show extensive degenerative changes and, although these cells may occasionally lie in the periphery they are distinct from the normal row of peripheral dark cells.

In summary it may be said that anaphylactic shock is associated with a marked passive congestion and a definite fall in arterial blood pressure. The fluid passes out of the capillaries as lymph and the deprivation of oxygen to the vessel walls facilitates the process. There are probably definite toxic elements formed from the degenerating hepatic cells, and Doctor Weatherford believes that the smooth muscles play only a minor part in the contraction of the vessels. Probably this contraction is due to the toxic elements liberated from the hepatic cells.

Dr Henry I. Kohn spoke on "Concerning the Role of Chlorophyll in Photosynthesis." In the past twenty years it has been shown that chlorophyll is closely related to the hemin molecule but that magnesium is used in place of iron. The molecular weight is about nine hundred. The process of photosynthesis has never been carried out *in vitro*. We may think of the action of chlorophyll as essentially that of an enzyme. By using brief intensive flashes of light properly spaced the ratio of chlorophyll to carbon dioxide per flash may be found and this has been calculated to be about two thousand indicating that this number of molecules of chlorophyll is needed to convert one molecule of carbon dioxide into sugar. By comparing this with other vital processes it would seem that the chlorophyll which is extracted from plants must be changed by the extraction process. The true chlorophyll in the living plant is probably a much larger and more complex molecule than the extracted form. Other types of enzymes give values about one thousand times as great as in the value procured above. Doctor Kohn concluded that the differences may best be explained by assuming that chlorophyll is radically modified by extraction.

Dr Fuller Albright spoke on "The Locus of Action of the Parathyroid Hormone." In the investigation of any endocrine gland it is necessary to study more especially the hormone secreted by the gland and the hormones mode of action, besides examining the great number of possible secondary reactions and influences exerted on the rest of the body.

One group led by Collip believes that the parathyroid affects the bones directly and extracts calcium by the action of osteoclasts. Another group headed by Jaffé considers that the environment of the bone is so changed that calcium and phosphorus are absorbed, and later the osteoclasts remove the debris. Doctor Albright believes that the bone changes are secondary to the calcium and phosphorus changes in the blood and urine. Slides were shown to demonstrate the chief points. In typical hyperparathyroidism we see bone being absorbed very rapidly in association with numerous osteoclasts and as a result of the stress and strain on the bone numerous osteoblasts are stimulated to lay down osteoid tissue. Collip thinks that the osteoclasts are directly stimulated by the hormone but Doctor Albright believes that the primary change is the increased excretion of phosphorus in the urine which leads to a decreased phosphorus in the blood and this in turn necessitates a high blood calcium. The reasons for this belief are summarized below.

In hypoparathyroidism there are no bone changes and it seems hard to believe consequently that there can be a direct action on the bone. On the other hand if the hyperparathyroid patient eats a high calcium and phosphorus diet, he can recalcify his bones and, therefore the bone changes are reversible. Recently cases of hyperparathyroidism have been found with no skeletal disease. Phosphatase is thought to be excreted by the osteoblasts and therefore is an index of their activity. The serum values of this enzyme are increased in hyperparathyroidism when there are bone changes but this is not true where there are no skeletal changes. Furthermore, bone biopsy of these patients shows no evidence of osteoblastic or osteoclastic activities. For these reasons it seems probable that the bone changes are entirely secondary and will not occur if there is a high enough calcium and phosphorus intake.

In the discussion it was brought out that a high phosphorus diet is dangerous to the kidneys and that if the blood calcium is raised to too high a level, a fatal outcome may ensue. Doctor Wislocki pointed out that there is increasing evidence that the osteoclasts do not play a significant rôle in phagocytosis of bone according to recent work they probably represent degenerating osteocytes which have coalesced to form giant cells. The resorption of bone appears for the most part to be a chemical affair unrelated to any activity of the osteoclasts. In hyperparathyroidism the ionized calcium is chiefly affected but the proteinate is also increased slightly although the serum protein values remain the same.

FAULKNER HOSPITAL CLINICAL MEETING

The regular monthly clinical meeting of the Faulkner Hospital was held at the hospital at 5:00 P.M. on Thursday April 4.

The first case taken up for discussion was that of a woman forty years of age who died in what

appeared to be uremic coma, although during her stay in the hospital her blood pressure was never appreciably elevated and she was passing a reasonable amount of urine. The urine contained blood and pus. There was fever, leukocytosis and pronounced pain in the right flank and right upper quadrant of the abdomen. At one time acute cholecystitis was considered but this was ruled out by the x-ray studies after the dye had been given by mouth. Pyelograms showed what appeared to be a hydro-nephrosis on the left side with a fairly normal pelvis on the right. There was practically no elimination of phthalein from either kidney and the non-protein nitrogen was found to be 210 mgm per 100 cc of blood. At autopsy much to everyone's surprise there were found congenital cystic kidneys which had become infected in both pelves, an abscess had developed in the upper pole of the right one, which probably caused symptoms suggesting cholecystitis, and there were numerous hemorrhages into the cysts in both. Just how the infection had taken place was not clear. Although large enough to be felt, neither kidney had been felt during life and they were not the markedly enlarged congenital cystic kidneys which are generally seen. On looking back at the x-ray pictures the point of importance which was stressed by the roentgenologist was the fact that both kidney outlines were indefinite, and therefore suspicion of something unusual in the contour was indicated. In view of the fact that there was no sustained elevation of the blood pressure or evidence of marked uremia, it was felt that the uremia was accelerated by the acute infection and that if the acute infection had not been superimposed the congenital kidneys might have functioned for some time longer.

The other case was one of typhoid fever in which the patient apparently had been ill without proper adjustment to it for some time, because within a few days of the first visit by a physician there was severe and persistent hemorrhage from the intestines until the fatal termination. The appearance of the abdomen was the striking feature in the case because there was no distention, in fact the abdomen was somewhat retracted, despite the presence of many deep ulcerations and much hemorrhage.

Following the presentation of these cases Dr James M. Baty gave a very interesting talk on "The Anemias of Infancy." He presented a series of clear and descriptive lantern slides. The first showed the difference in the blood forming organs, namely, liver, spleen and bone marrow in infants, in children and in adults. He called attention to the fact that at birth the infant has a normal blood count, sometimes slightly elevated, then for the first three months there is a steady drop in hemoglobin and red blood cells and following this there is a gradual rise until the blood returns to normal by the second year.

He had studied one thousand consecutive admissions to the Infants' Hospital and an equal number to the Children's Hospital. There was anemia

in 35 per cent of the infants and 20 per cent of the children. He then discussed the anemias in the infants. The cause of these anemias was infection in 61 per cent, dietary disorders in 17 per cent, and in 7 per cent the mother was anemic during the pregnancy. The remaining causes of anemia were in groups comprising 3 per cent or less.

He called attention to the fact that during the acute stage of any infection the usual agents which tend to build up the blood are not effective. Following the subsidence of the infection the blood tends to improve, but this improvement can be accelerated by the use of iron or liver extract or both. During the acute stage of infections, transfusions are sometimes helpful, and his impression is that frequent small transfusions are probably better than one large one. He suggests 10 cc. of blood per pound of body weight but not above 200 cc. irrespective of the weight.

In the dietary anemias he called attention to the fact that there may well be an iron deficiency due to lack of assimilation and that the important point is to improve the absorption of iron.

An experiment with the use of ultraviolet rays in dietary anemias with the chance that rickets might be a factor although not apparent, failed to show any value from the rays.

Infants born from anemic mothers have a normal blood at birth, but very quickly develop anemia which persists throughout the first year. If the mother is treated during the pregnancy for her anemia, the infant does not develop this anemia during the first year.

There is a distinct physiological anemia in premature infants. Here again the blood is normal at birth but the anemia reaches a peak in about ten to twelve weeks. This tends to correct itself without treatment.

The result of Dr. Baty's studies emphasized the fact that the important treatment is to remove the cause. The recovery from these anemias can usually be accelerated by the use of iron. There are various ways of administering iron. His favorite is iron and ammonium citrate which is given in orange juice or water and occasionally in milk, although with milk some of the iron is combined and rendered ineffective. There is a new preparation under the name of Feosol which seems to be quite satisfactory and does not require quite so large a dose. He emphasized the importance of not starting with the maximum dose of any iron preparation, because it may cause a gastric upset. The dose of iron and ammonium citrate is 30 to 40 grs a day in infants, 60 to 75 grs a day in children and 90 to 120 grs a day in adults. In an occasional case, liver seems to be of distinct assistance in addition to the iron and recently it has been suggested that copper is also beneficial.

HARVARD MEDICAL SOCIETY

At the February 26 meeting of the Harvard Medical Society at the Peter Bent Brigham Hospital, Dr

Cheever presided. The first case was presented by Dr. White. A sixteen year old boy entered on the first of December with a swelling of the legs and thighs of six months duration and acute abdominal pain for three days. At the age of three he had swelling of his eyes and body with urinary signs of nephritis. Last July he developed pain and edema in his legs and eyelids. Physical examination showed a pale boy with acne of his face and swelling of his eyelids, scrotum and extremities. His red count was normal and he had a hemoglobin of eighty five per cent. His white count has varied from six thousand to nineteen thousand. His blood cholesterol was 1660 which is the highest recorded in the hospital and his total plasma protein was 37 grams per 100 cc. A diagnosis of nephrosis was made and diuretics were used without any effect. On the eighth, ninth and eleventh of February intravenous injections of gum acacia were given. Apparently as a result of this therapy he lost ten kilograms of weight within a few days and the blood chemistry showed a total plasma protein of 1.9 per cent, and a cholesterol of six hundred and twenty milligrams per cent. Dr. Marshall N. Fulton discussed the case and said that the chief factor in the persistence of the edema is the low plasma protein, and that in this case an attempt was made to increase the osmotic pressure by the use of gum acacia. The patient had lost weight out of proportion to the diuresis, and had continued to lose weight after the diuresis stopped. It is difficult to raise the plasma protein in such patients by a high protein intake although a normal renal function allows such an excessive intake without injury to the kidneys. The patient is still putting out a trace of albumin in the urine. The high cholesterolemia is probably the result of a disturbed fat metabolism.

The second case was presented by Dr. Harrison. A forty-one year old man entered with a history of pain since November in his shoulder especially when he was tired. Six weeks before entry a lump appeared in the upper part of the right shoulder and there had been some limitation of motion for the week before entry. In 1929 he had a gastric hemorrhage and an ulcer was demonstrated by x-ray. Physical examination showed a well-developed man with out any abnormality except the local lesion which was a firm round tumor over the lateral third of the right clavicle. The white count was slightly elevated. There was no inflammation or pulsation of the mass on entry. During his stay in the hospital there had been a slight fever.

Dr. Sosman demonstrated the x-ray films on this case and showed that there was a definite softening of the bone with parallel new bone formation underneath and some new bone formation above the clavicle but also some destruction. The lesion was considered either a new growth or an inflammatory condition the most common diagnosis in a man of his age being either osteogenic sarcoma or a Ewing's tumor. Dr. Homans said that he could not conceive of this being osteomyelitis and Dr. Cutler

thought that the x-ray showed some perpendicular bone formation which is typical of an osteogenic sarcoma. Dr. Sosman held that x-ray treatment in this case would give good palliative results but no cures had been obtained by radiation alone and he therefore advised radical surgical treatment.

Dr. John A. Hartwell spoke on "Your Profession and Society." His address appeared in the March 28 issue of this Journal.

In the discussion Dr. Cheever said "It is unfortunate that students are not taught more of this side of medicine." Dr. Cutler pointed out that fee splitting is a common practice in many sections of the country and is one of the public sources of distrust of the profession. Any infringement of ethics makes the problem more difficult to solve. Then Dr. Homans said that in these days when everyone has financial troubles the doctor cannot help thinking about earning his living and that therefore his advice may at times be influenced by this condition.

THE NEW ENGLAND HEART ASSOCIATION

The New England Heart Association held its monthly meeting in the auditorium of the Beth Israel Hospital on Monday January 28 1935 at 8:15 P.M. Papers were presented by members of the Medical Research Staff of the Beth Israel Hospital. The speakers were introduced by Dr. Herrman L. Blumgart and each paper was followed by a brief discussion.

Dr. Louis Wolff presented a paper on the coexistence of auricular and auriculoventricular nodal tachycardias and its treatment with quinidine sulphate. He pointed out that digitalis may provoke auricular or ventricular tachycardia, and that the patient under discussion was suffering from digitalis intoxication on admission to the hospital. Doctor Wolff obtained good results by the use of quinidine sulphate in this patient and discussed the mechanism by which the abnormal tachycardias were abolished.

Dr. J. Riseman spoke on changes in blood pressure and heart rate in angina pectoris. In the cases studied attacks of angina pectoris were induced under direct observation by a standardized exercise tolerance test. The observations showed that the systolic blood pressure at the onset of such attacks of angina was higher in some patients lower in others and essentially the same as the blood pressure at rest in a third group. It was concluded that the blood pressure changes are of no diagnostic value and the onset of angina pectoris is not dependent on a rise in blood pressure. The changes in heart rate immediately before the onset of the attack likewise showed considerable variation and were influenced by the amount of exercise necessary to induce angina rather than by the attack itself. The dangers involved in performing the exercise test were discussed and the advantages of this over other tests were emphasized.

A paper was presented by Dr. Morton Brown on "Some Clinical Observations on the Treatment of

Angina Pectoris" The clinical evaluation of the various drugs is furthered by the use of an objective tolerance test. The patient's usual estimate of the duration of an attack of angina pectoris, for example, is about five minutes, whereas accurate timing reveals it to be seldom more than two and a half minutes. Doctor Brown has studied the effect of a number of drugs on the exercise tolerance of a series of patients with angina pectoris. In some patients he found definite clinical improvement and an increased exercise tolerance after treatment for a week with one of the following drugs: aminophylline, erythroltetranitrate, phenobarbital, and quinidine.

"The Mechanism of Early Relief of Pain in Angina Pectoris after Thyroidectomy" was the subject of a paper by Dr A A Weinstein and Dr H Hoff. The immediate relief of pain following thyroidectomy in many patients has been found to last from a few days to several weeks, the pain then returning unless the necessary fall in basal metabolic rate had occurred. It has also been observed that unilateral cervical sympathectomy often gives relief of pain in angina pectoris only on the corresponding side. Following this lead, a number of patients with angina pectoris selected for two stage total thyroidectomy were studied for relief of pain after hemithyroidectomy. After hemithyroidectomy it was found that relief was obtained only on the side operated upon. Areas of bone and muscle tenderness over the chest were tested in several cases during the procedure of thyroidectomy. In these patients it was found that the tenderness usually disappeared on the corresponding side as soon as one of the thyroid arteries was ligated and sectioned or the thyroid was freed from its bed. After the pain and tenderness had returned, relief could again be obtained temporarily by injection of the stellate ganglion with novocaine. These observations indicate that the immediate relief of pain in these cases was due to interruption of nerve pathways in the neck bearing impulses from the heart to the sensorium. Doctor Weinstein and Doctor Hoff have found a close association between the cardiac nerves and the posterior aspect of the thyroid in many dissections of fetuses and adults. In some dissections, however, no association could be demonstrated. This is in accordance with the observation that in some cases there is no immediate relief of pain, the relief appearing only after there was an adequate fall in the basal metabolic rate.

Dr M D Altschule presented a paper on "The Cardiac Output and the Work of the Heart in Hypothyroidism". Employing a modification of the formula of Evans, the work of the heart was taken to be the product of the minute volume output and the peripheral resistance. The work of the heart was found to parallel the cardiac index (the minute volume output of the heart per square meter of surface area which is normally 2.2 ± 3). There was a similar correspondence between the cardiac index and the velocity of blood flow, with rare exceptions.

A distinct fall in the cardiac index was found following total ablation of the thyroid, associated with the fall in basal metabolic rate. At the same time the arteriovenous oxygen difference was found to rise progressively so that the decrease in cardiac output was greater than the fall in basal metabolic rate. It was concluded that the permanent relief following total ablation of the thyroid is due to the establishment of a decreased demand upon the heart.

Dr D Davis presented "Results of Total Thyroidectomy in Twenty Seven Patients with Congestive Failure One to Two Years After Operation". Fifteen were females and twelve males. The ages varied from eighteen to sixty six. Eighteen were rheumatic and six were arteriosclerotic heart patients. One was a luetic, one a hypertensive, and one a patient with cor pulmonale. Sixteen were chronic fibrillators and three of these had had embolic phenomena. The twenty-seven patients included the first group of consecutive patients who had survived thyroidectomy by at least six weeks. Eleven of these twenty seven, or forty one per cent, remained considerably improved for a period of at least one year or longer and eight of these either did light work or were able to during this time. Six other patients were likewise appreciably benefited by the operation, although the marked improvement was not maintained for a full year in all six. Seven other patients showed only slight improvement, and three patients failed to show any improvement. Thus, sixty three per cent were benefited by the procedure and the majority of these maintained their improvement with an increased capacity for activity for more than a year after thyroidectomy.

The final speaker of the evening was Dr J Rise-man, who presented "The Results of Total Ablation of the Thyroid on Cardiac Asthma and Angina Pectoris". He divided his series of twenty three patients with cardiac asthma into three groups. A first group of twelve cases has gone from six to nineteen months without return of cardiac asthma. A group of five cases showed only temporary improvement. The third group of six patients showed no improvement. Hence, in unselected cases of cardiac asthma there is symptomatic relief in fifty per cent of the cases, which compares favorably with any other form of treatment for this disease. He next presented a series of thirty six cases of angina pectoris. Twenty five of these were patients with pure angina pectoris without other cardiac disability. A group of ten cases has shown satisfactory results with either no attacks or attacks so mild and so infrequent that they were able to return to work. Five patients have shown a marked decrease in the severity of the attacks. A third group of five patients has shown no significant improvement. All of a fourth group of five patients have died since the operation without improvement. As a rule, notes on the clinical course of the patients checked well with the results of the exercise test, but in the group with clinically no significant improvement there was definite improvement demonstrable in some cases by

the exercise tolerance test. Eleven of the thirty six cases were complicated by cardiac asthma or congestive failure. In nine of these cases there have been no attacks of angina since thyroidectomy. The preoperative basal metabolic rates were within normal limits in those patients who showed satisfactory improvement following operation while those individuals who showed temporary or slight improvement as a rule had low basal metabolic rates before operation. It was concluded that the operation has been of definite value in selected cases of angina pectoris.

MASSACHUSETTS PSYCHIATRIC SOCIETY

The Massachusetts Psychiatric Society held a meeting in the Boston Psychopathic Hospital on the twenty-seventh of February. The first paper was presented by Dr. Salomon Gagnon on "A Review of the Problems of Bacillary Dysentery." Bacillary dysentery is an important problem in all institutions and there have been many epidemics especially in those devoted to mental disease. Some statistics show a mortality as high as twenty-five per cent. Carriers are frequent, and fatal cases are almost invariably in elderly debilitated patients. The state institution at Danvers had an epidemic of this disease starting in 1921 which reached its peak in June 1932. The mortality during 1932 was nineteen per cent. The records show another similar epidemic in 1908 although it was caused by a slightly different type of organism and the mortality was twenty-three per cent.

In spite of great precautions dysentery is still a great problem. The water supply food and milk should be checked, carriers should be treated and patients isolated. Oral as well as subcutaneous vaccines were tried and while there are no definite statistics available at present to determine the results, it may be said that there have been no bad reactions from the administration of vaccine, and that there have been no cases yet in those patients who received vaccine by the subcutaneous route although eighteen cases of dysentery developed in those receiving oral administration.

The clinical picture of bacillary dysentery consists of a sudden onset, usually without prodromal symptoms with a high temperature up to one hundred and five degrees and a watery blood-streaked diarrhea, which has a peculiar typical foul odor. The pulse is rapid, the patient is prostrated and the temperature usually returns to normal within twenty-five to forty-eight hours. In the early stages cultures of the feces are usually positive and somewhat later agglutination tests of the patient's serum become positive. Several negative stool cultures do not definitely eliminate the diagnosis of dysentery. In the epidemic mentioned above only thirty-two per cent gave a positive stool culture. Pathologically shallow ulceration is found in the colon and to a less extent in the lower portion of the small intestine.

The treatment is similar to that of any diarrhea

and consists of enemata, astringents, opium and dietary care as well as sanitary measures isolation, special nurses, precautions to disinfect the linen and excreta, and inspection of the food and water supplies. It is important to screen these patients carefully to avoid spreading the disease by means of flies. The quarantine period is six weeks or until several successive cultures have become negative.

In conclusion it was stressed that bacillary dysentery is a common and serious disease in mental hospitals with a high morbidity and mortality which is especially fatal in the debilitated patient. Certain clinical symptoms are important, but cultures are preferable in diagnosis and vaccination is logical, although its value has not been demonstrated.

In the discussion which followed it was pointed out that diarrhea is common in the general public but that these cases are not reported so that the institutional figures appear worse than they really are.

Dr. Leo Maletz spoke on "Sodium Fluoride Poisoning" and presented a fatal case of this condition which occurred at the Danvers State Hospital. Sixty-five fluoride poisoning cases have been reported in the literature with a mortality of fifty-five per cent. Sodium fluoride is commonly used in insecticides especially roach powders is commonly stored on the kitchen shelf and may thus be accidentally used in foods. Clinically the symptoms and signs are essentially due to calcium deprivation with a resulting tetany and irritability of the muscles. The coagulability of the blood is abolished and within five minutes after the intake of the poison the patient complains of severe epigastric pain, vomiting, burning cramps and diarrhea. There are spasmodic contractions of the legs, cyanosis and shock. Death usually occurs in from three-quarters of an hour to four hours although occasionally the patient lives twelve hours. Death is due to failure of the cardiorespiratory center and usually occurs suddenly. Treatment consists in the administration of a ten per cent aqueous solution of calcium chloride which precipitates the fluoride. The tetany is combated by an intravenous injection of ten per cent calcium chloride or parathormone.

The case occurring at Danvers recently was a forty-one year old kitchen worker who had prepared some hard sauce in which he had used powdered sugar. He sampled it, and in a few minutes felt sick and was overcome by weakness, nausea and vomiting. He was given a gastric lavage and shock treatment. A saline purgative was administered. Several hours later he complained of muscular cramps especially of the facial muscles and suddenly some six hours after the onset when he seemed to be much improved he suddenly died. His white blood count was twenty thousand with ninety-one per cent polymorphonuclear cells. The blood calcium was 5.8 milligrams per cent. At autopsy his face was distorted and there was a continuous oozing of dark blood from the wounds with many epicardial hemorrhages and numerous reddish patches throughout his body in all the organs.

The source of the fluoride was found to be in the powdered sugar which had been contaminated with roach powder. Chemically fluoride was found present in the stomach, intestinal contents, liver, spleen, heart, brain, and heart blood. Because of the high toxicity, anything containing fluoride should be labeled "poison" and discolored. At the present time at Danvers small amounts of lamp black are added.

Dr. Paul Tivnan spoke on "Paget's Disease." The term "osteitis deformans" was first used in 1873 by Czerny, and Paget wrote his original article in 1876 with the report of five cases. Since this time five hundred cases have been reported in the literature. This disease rarely occurs under the age of thirty, or over the age of sixty. The onset is usually slow, and is first noticed by the patient when it is found that his head is getting too large for his hat and that he is becoming shorter. Seventy per cent of the cases have pain as the first symptom which varies from mild discomfort to an occasional pain in the lower extremities. Generalized headache may occur. The pain may arise from the stretching of the periosteum, compression of the sensory nerves, arterial involvement with claudication, or coincidental arthritis. If most of the bones are involved the head becomes larger and there is a marked kyphosis, a rigid spine, a broad pelvis, and a bowing of the extremities, so that the individual walks with a waddling gait and may shrink as much as eight inches.

Pathologically the first change occurs at the site of a nutrient artery and there is sclerosis. Later this sclerosis becomes diffuse and spreads up and down the bone, or there may be multiple areas of involvement. Later the original areas may lose their characteristic sclerosis and show a fibrous infiltration with a destruction of the transverse trabeculae which results in an enlargement of the bone and a loss of weight bearing power. Still later the longitudinal trabeculae are destroyed, and cystic degeneration occurs. In the skull where there are many nutrient arteries from both the dura and the scalp, there is a diffuse sclerosis with a typical appearance of "curly wool" on x-ray examination. The bone is broken down by osteoclasts and fibrous infiltration.

The bowing which occurs in the upper extremities is due to the pull of the muscles and is usually greater in the arm that is most used. Cyst formation is commonest in the pelvis. Fractures are common, although the literature often states that they are rare. Seven per cent undergo sarcomatous degeneration. One of the outstanding characteristics is early and advanced arteriosclerosis, and eighty-five per cent of the patients show marked changes in the peripheral vessels. Fifty per cent have hypertension.

Biochemically there is an increase in the phosphatase content of the blood which may reach twenty times the normal value. The neurological manifestations may be due to compression of nerves or arteriosclerotic changes. The extreme thickness of the calvarium frequently involving the base of

the skull with a narrowing of the posterior fossa and a depression of the anterior fossa may lead to marked pressure symptoms involving the cranial nerves, especially the optic and auditory nerves, as well as the cerebellum and medulla. The vertebrae are often involved and may encroach upon the spinal cord, giving symptoms. The mental changes which have been noticed from time to time in these cases are due to arterial changes or compression of the brain, or a change in the internal secretions may play a rôle. The etiology is unknown.

In the discussion Doctor Raeder showed a chart of the different shapes of heads in endocrine disturbances. That characteristic of Paget's disease is large and round. A patient with Paget's disease was reported with petit and grand mal attacks followed by deterioration, but no other similar case is reported in the literature.

TWINS AND SOCIAL BIOLOGY

Dr. G. H. Parker gave the Sunday lecture at the Harvard Medical School, March 10, on "Twins and Social Biology." He said there are two underlying principles by which people develop. The first is inheritance, which cannot be altered, and the second is that which we assimilate from our surroundings. He stressed the point that every trait is a combination of both elements, although one or the other usually predominates. The study of twins is an important method used to analyze the influence of environment and heredity. One pair of twins occurs in every ninety births, triplets about one in eight thousand births, and quadruplets about one in half a million births. There is apparently one authentic case of sextuplets.

The diversity and individuality seen in human beings are apparent throughout the animal kingdom, and Doctor Parker fully demonstrated the reason for this. In the adult cell there are twenty-four pairs of chromosomes which carry the genes which are responsible for hereditary characteristics. The reproductive cells lose one-half of their total chromosomes in the process of maturation, and it is mere chance as to which one of each pair will disappear. This allows something over sixteen and a half million possible combinations in each of the parent cells, so that each fertilized egg will have somewhat over two hundred and eighty-one trillion possible combinations of hereditary characteristics.

Four pairs of twins out of five are ordinary or dissimilar twins, and are as different as any two children in a family. One out of five pairs, however, is an identical pair which are always of the same sex and are much alike both physically and mentally, even to minute details. Ordinary twins come from separate eggs, but identical twins originate from one single egg, and, therefore, have exactly the same heredity. The armadillo gives birth to four young, all of which come from one egg. Since identical twins are from the same egg they may not always fully separate, and it is the various stages of separation that give rise to

Siamese twins and other double monsters. Because the heredity of similar twins is so closely the same, they become excellent subjects for the study of the effects of environment.

Several cases of separation of identical twins have been studied and the differences noted. Physically no differences become manifest but it has been concluded that environment plays a definite part in deciding the characteristics of a person. The mental ability remains the same and there has been a striking case reported where both members were afflicted with dementia praecox after they had become separated. Doctor Parker cited a case of identical twins being born to a vagrant mother where the children were placed in separate families, and both had good surroundings and excellent opportunities to develop their character. However when they became of school age they both were truants and later both met at Sherborn. From this it would seem that tendencies to vagrancy are apparently inherited and it has been found that criminality is much greater in the mates of identical twins than in the mates of ordinary twins. Doctor Parker concluded from these studies that we are all pretty much what we are through inheritance, although we each have a fringe of freedom in which we can influence our character by our surroundings. He believes that human character is strongly predetermined and that the amount of freedom in personality development is limited.

The question has arisen of how to take care of defective individuals. Huge sums of money are spent each year on the care of defectives. It is obvious from our present social ethics that we must care for these people, but it is only fair that we should also prevent them from further propagation. This has been attempted by a method of segregation in Massachusetts but it is not very effective and prevents them from at least partially supporting themselves in the community. The other obvious way to control propagation of these defectives is to sterilize them and thus prevent childbearing. The modern operations are simple and do not disturb any of the normal functions of the body sexual or otherwise, except that such persons are sterile. The glands are left intact. This procedure is now legal in twenty-eight states of the Union and about sixteen thousand sterilizations have been carried out. It is a court procedure, and has been given the longest trial in California. It is highly advisable that Massachusetts likewise do something along this line to prevent further propagation of hereditary defectives, and the day is not far off when the situation must be met.

MASSACHUSETTS HOMEOPATHIC MEDICAL SOCIETY

Dr Ray W Spalding of Boston was reflected President of the Massachusetts Homeopathic Medical Society at its annual meeting. Addresses were delivered by Dr Eleanor B Ferguson, Dr Herbert H. Smith, Dr W. D. Rowland, Dr John P. Suther-

land and Dr John Garth Boericke, professor of homeopathy and materia medica at Hahnemann College.

STAFF CONFERENCE OF THE J B THOMAS HOSPITAL

The second monthly Staff Conference at the J B Thomas Hospital was held Tuesday evening March 19 1935.

Dr Samuel Levine of Boston guest speaker of the evening gave an interesting talk on "Factors Concerning Prognosis in Heart Disease," followed by a general discussion.

Members of the staff local physicians dentists graduate nurses and students were in attendance.

This was the second of the series of such clinical conferences which are to be held to present practical questions of medical and surgical interest.

WILLIAM PATTEN McHUGH M.D.,
Staff Secretary

ESSEX NORTH DISTRICT MEDICAL SOCIETY

The 95th Annual Meeting of the Essex North District Medical Society will take place at the Anna Jaques Hospital in Newburyport on Wednesday May 15 with the following program:

Hospital ward rounds at 11 30

Business meeting at 12 30

Dinner at 1

Discussion at 2 P.M. on Some Practical Highlights in the Management of Diabetes by Dr Elliott P. Joslin followed by Dr Channing Frothingham's discourse on "Physicians Patients and Pay."

ELMER S. BAGNALL, M.D. Secretary

NEW ENGLAND SOCIETY OF PSYCHIATRY

ANNUAL MEETING

The Annual Meeting of the New England Society of Psychiatry will be held at the Boston Psychopathic Hospital, Boston, April 26. Buffet luncheon will be served at 1 P.M. Business meeting at 2 P.M.

HARLAN L. PUNK, M.D.

Secretary-Treasurer

HAMPDEN DISTRICT MEDICAL SOCIETY

The Annual Meeting of the Society will be held at Hotel Kimball, Springfield, Mass., on Tuesday April 30 at 4 P.M.

Regular business and reflection of officers for the ensuing year.

Paper for the afternoon.
Practical talk on "Allergy" Dr. I. Chandler Walk of Boston.

Discussion by Fellows.

Supper at 6 P.M. at expense of Society.

Censors meet for the examination of candidates in the rooms of the Springfield Academy of Medicine on Thursday May 2 at 4 P.M.

HERBERT L. SMITH, M.D., Secretary

FRANKLIN DISTRICT MEDICAL SOCIETY

The Annual Meeting of the Franklin District Medical Society will be held at The Weldon, Green field, on May 14, 1935, at 11 A.M

PROGRAM

Annual Report of Secretary
Annual Report of Treasurer
Economics
General Discussion by members of the Society
H B MARBLE, M.D., *President*,
CHARLES MOLINE, M.D., *Secretary*

GREATER BOSTON MEDICAL SOCIETY

SPECIAL MEETING

Time Tuesday, April 30, 1935, 8 15 P.M.
Place Beth Israel Hospital Auditorium
Speaker Frankwood E. Williams, M.D., of New York

Subject "The Relation of the Physician to the Problem of Economic Security"

Open discussion

H L BLUMGART, M.D., *President*,
D B STEARNS, M.D., *Secretary*

A subscription dinner will be held in honor of Dr Williams at the University Club at 6 30 P.M. before the meeting. Any member may make reservations by telephone and by sending \$1.25 to the Secretary before April 28

SUFFOLK DISTRICT MEDICAL SOCIETY

CENSORS' MEETING

The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, 8 Fenway, Thursday, May 2, at 4 00 o'clock

Candidates should make personal application to the Secretary, and present their medical diplomas at least one week before the examination

GEORGE P. REYNOLDS, M.D., *Secretary*

311 Beacon Street, Boston

FAULKNER HOSPITAL CLINICAL MEETING

The next meeting will be held at the Faulkner Hospital on Thursday afternoon, May 2. In addition to the usual clinical pathological conference, Dr F. William Marlow, Jr., will talk on "Latent Ocular Muscle Error" and Dr Henry M. Emmons will talk on "The Importance of Eye Symptoms in Diagnosis"

All physicians are invited

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

The Annual Meeting will be held on May 8, 1 P.M., at the Winchester Country Club, Winchester

Speaker Captain Van Amburgh of the State Department of Public Safety

Subject Ballistics

Election of Officers Harlow Dinner

K L. MACLACHLAN, M.D., *Secretary*

WORCESTER DISTRICT MEDICAL SOCIETY

The Annual Meeting of the Worcester District Medical Society will be held during the afternoon and evening of Wednesday, May 8. This meeting will be held at the Worcester Country Club. A golf tournament will be participated in during the afternoon. The annual dinner will be held at 6 30 and this will be followed by the business session and the annual oration, which will be delivered by Dr Roy J. Ward of Worcester

ERWIN C. MILLER, M.D., *Secretary*

AMERICAN NEISSERIAN SOCIETY

The first Annual Meeting of the American Neisserian Medical Society will be held at Hotel Claridge, Atlantic City, New Jersey, June 11, 1935. The program contains addresses by the following speakers

M. L. Brodny, M.D., and E. Granville Crabtree, M.D., Charles M. Carpenter, M.D., Emily D. Baringer, M.D., Russell D. Herrold, M.D., J. Dellinger Barney, M.D., Stanhope Bayne-Jones, M.D., P. S. Pelouze, M.D., C. C. Norris, M.D., Thomas Parran, Jr., M.D., W. F. Snow, M.D., and Edward L. Keyes, M.D.

SOCIETY MEETINGS, CONGRESSES
AND CONFERENCESCALENDAR OF BOSTON DISTRICT FOR THE WEEK
BEGINNING MONDAY, APRIL 29, 1935

Monday, April 29—

- 11 A.M. Annual meeting of the Massachusetts Tuberculosis League, University Club, Boston
- *8 15 P.M. New England Heart Association, House of the Good Samaritan, 25 Binney Street, Boston

Tuesday, April 30—

- 12 30-4 P.M. Ward Visit, Massachusetts Eye and Ear Infirmary
- 14-5 P.M. Seminar, Pediatric Laboratory, Massachusetts General Hospital
- 6 30 P.M. Greater Boston Medical Society Dinner, University Club, Boston
- 8 15 P.M. Greater Boston Medical Society, Beth Israel Hospital Auditorium, Boston

Thursday, May 2—

- *12 M. Clinico-Pathological Conference, Massachusetts General Hospital
- 112 M. Clinico-Pathological Conference, Children's Hospital
- *5 00 P.M. Faulkner Hospital Clinical meeting

Saturday, May 4—

- *10-12 Staff rounds at the Peter Bent Brigham Hospital. Open to practicing physicians
- *Open to the medical profession
- †Open to Fellows of the Massachusetts Medical Society

April 26—New England Heart Association, annual meeting, 4 00 P.M., Boston Medical Library, 8 Fenway
April 26—New England Society of Psychiatry. See page 807

April 26—The New England Roentgen Ray Society will meet at 8 15 P.M. at the Children's Hospital, 300 Longwood Avenue, Boston

April 26—Boston University School of Medicine Surgical Clinic at the Boston City Hospital, 12-1, Cheever Amphitheatre.

April 29—Massachusetts Tuberculosis League Annual Meeting, will be held at the University Club, Boston, beginning at 11 A.M.

April 29—New England Heart Association will meet at 8 15 P.M. at the House of the Good Samaritan, 25 Binney Street, Boston

April 29 May 3, 1935—The American College of Physical Therapists will meet at Philadelphia. For information address Mr. E. R. Loveland Executive Secretary, 133 135 South 26th Street Philadelphia, Pa.

April 30—Greater Boston Medical Society See page 808

May 2—Faulkner Hospital Clinical Meeting See page 808

May 6 7—Conference on Occupational Diseases 3 P.M. Hotel Statler Boston.

May 10—Boston University School of Medicine Surgical Clinic at the Boston City Hospital. See page 799

June 1935—Medical Library Association will meet in Rochester N. Y. For details address the Secretary Miss Frances N. A. Whitman Librarian, Harvard University School of Medicine and Public Health Boston Mass.

June 11—American Heart Association The Eleventh Scientific Session will be held from 9 30 A.M. to 5 30 P.M. at the Hotel Claridge Atlantic City N. J. The program will be devoted to various subjects on cardiovascular disease. Gertrude P. Wood, Office Secretary 50 West 50th Street New York, N. Y.

June 11—American Neurological Society See page 803

June 12 and 13—Academy of Physical Medicine Annual Meeting, will be held at the Claridge Hotel Atlantic City N. J. For further details address Arthur H. Ring M.D. Secretary Treasurer Ahlington Mass.

June 17 to 21—Convention of the Catholic Hospital Association will be held at Creighton University Omaha Nebraska. For information address the Most Reverend Joseph Francis Rummel, D.D. Bishop of Omaha

June 24 25—American Urological Association and Western Branch Society American Urological Association will meet at the Palace Hotel San Francisco California. For details write Dr. Charles P. Mathis 460 Sutter Street San Francisco California

June 27 29 Inc.—British National Association for the Prevention of Tuberculosis will be held at Southport England. Persons desiring further information should write to Miss F. Suckland Secretary of the Association at Tavistock House North Tavistock Square London W. C. 1, England.

July 1 23—University of Freiburg 1 Br will hold a vacation course of the medical faculty. For information address Akademische Auslandsstelle der Universität Freiburg 1 Br Schwimmbadstrasse 8 Germany

July 22 27—Seventh International Congress on Industrial Accidents and Diseases, Brussels Belgium. The American Committee of the Congress is under the chairmanship of Dr. Fred H. Albee, New York for the Session on Accidents, and that of Dr. Emory R. Hayhurst, Columbus Ohio for Industrial Diseases. The American delegation to the Congress will sail from New York on July 8 and visit London Amsterdam The Hague and Paris and optionally Budapest. Physicians interested in the Congress or in the medical tour in conjunction with it may address the Secretary Dr. Richard Kovacs 1100 Park Avenue, New York City.

October 10—American Public Health Association will meet in Milwaukee, Wisconsin. For information address the American Public Health Association, 60 West 50th Street New York City

DISTRICT MEDICAL SOCIETIES

ESSEX NORTH DISTRICT MEDICAL SOCIETY

May 15—See page 807

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

May 8—Annual Meeting Salem Country Club Peabody Dinner at 6 P.M. sharp (Note change in time)

FRANKLIN DISTRICT MEDICAL SOCIETY

May 14—See page 808

HAMPDEN DISTRICT MEDICAL SOCIETY

April 30—See page 807

May 2—Censors Meeting See page 807

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

May 8—See page 808

NORFOLK DISTRICT MEDICAL SOCIETY

May—Annual Meeting Date time and place to be announced.

SUFFOLK DISTRICT MEDICAL SOCIETY

May 2—Censors Meeting See page 808

WORCESTER DISTRICT MEDICAL SOCIETY

May—Censors Meeting will be held in the Arts Room of the Worcester Public Library Elm Street at 4 30 P.M.

May 8—See page 808

BOOK REVIEWS

A Text Book of Pathology An introduction to medicine. William Boyd Second Edition 1047 pp Philadelphia Lea & Febiger \$10.00

The second edition of Boyd's textbook of pathology insures continuation of the popularity and success with which the first edition was presented. From the standpoint of acceptability of material, readableness and accuracy this book is outstanding. The author not only relies on his own experience but draws with excellent judgment from the current literature of pathology. This edition is remarkably up-to-date including subjects generally omitted from textbook consideration, such as von Gierke's disease, medionecrosis of the aorta, the finer subdivisions of the ovarian tumors and the St. Louis type of encephalitis. The illustrations are excellent and the magnifications of the photomicrographs well suited to the points which it is desirable that they should show. The reviewer wishes as long as expensive colored plates are included among the illustrations that one of them might have been of human rather than rabbit pathology. The references for collateral reading are excellently selected and up-to-date. In any textbook that attempts to cover so large a subject in a volume of reasonable size minor flaws can be found but unless one is definitely hypercritical there is little room for improvement in Boyd's work.

Handedness Right and Left. Ira S. Wile 439 pp Boston Lothrop Lee and Shepard Co., 1934 \$2.75

The question of right and left handedness appears to be one of growing interest. It is now believed by many that children who are naturally left handed should not be made to use their right hand for if this is done certain types of nervous disorders may appear as the result of this attempt at readjustment. Attention has been called particularly to stammering and stuttering which at least in some cases is definitely connected with an attempt at turning a left-handed person into one who consistently uses his right hand. Dr. Wile has gone into the subject with a very broad point of view. The book is widely documented. The author's researches have led him into many adjacent fields of thought, including the history of the subject, particularly the facts in relation to primitive man and somewhat analogous features of plant life such as heliotropism and the religion associated with hand symbolism.

From the physician's point of view the importance of this book lies in the interpretation of the material as applied to children. Dr. Wile concludes that "From every standpoint, natural handedness should be fostered and conserved. There is nothing useful which can be performed by the right hand that cannot be equally well done by its symmetrical ly functioning mate." If one ignores this it seems certain that some types of nervousness may develop

later on in life which may be difficult to cure, even though the patient may go back to his state of natural handedness

A Manual of the Practice of Medicine A. A. Stevens
Thirteenth Edition 685 pp Philadelphia and London
W B Saunders Company \$3 50

This little book has been revised to cover the most recent work, even including the work on alphanitrophenol and that on agranulocytosis from amidopyrine and other drugs

The fact that this book has run through thirteen editions shows that it is useful as a manual. It is extraordinarily complete for as small a book as this and is very nicely printed and of convenient size. The contents are accurate and of particular value for the excellent form in which the prescriptions are written. From this point of view it could well serve as a model even for books dealing with therapeutics.

As to the value of a small compend of this sort either for medical students or practitioners there may be some discussion, although the terseness and completeness of his descriptions provide somewhat of a contrast to the discursiveness of many medical texts.

As a book of ready reference and convenient size it can be widely recommended.

The Science and Practice of Surgery W H C Romanis and Philip H Mitchiner Fifth Edition.
Vols I and II General Surgery and Regional Surgery Philadelphia and London Lea & Febiger
\$13 00

As in previous editions these volumes cover the entire field of surgery in a clear and concise manner. At no time do the authors lose themselves in a maze of detail, but continue on a high level of perspective from which they describe general outlines. And yet the text is kept from becoming a mere outline by a style that carries the reader along with continuous interest.

It is an admirable textbook, for from it medical students can learn the principles of surgery easily and at the same time feel certain that their knowledge is up-to-date. For those who are away from medical centers it furnishes a guide to new methods of diagnosis and therapy. It is not of great value to one who wishes to learn surgical technique.

In the present edition are much revised chapters on peritonitis, fractures, burns, varicose veins, diseases of the eye and anesthesia.

There are many good illustrations and the workmanship of the book is excellent.

Aids to Psychiatry W S Dawson Third Edition
318 pp Baltimore William Wood & Company
\$1 50

This small book, printed in England and now in its third edition, is one of a so-called "students' aids series." Designed to help an English medical student cram through an old-fashioned examination

for the technical qualifications of "psychiatrist," such a book is both unsound and unsuited to students in America. No attempt has been made to evaluate, or in many cases even mention, the recent advances in the study of mental disease. To borrow a phrase from the case-histories in the Edwin Smith papyrus a book not to be recommended.

A Summary of the Treatment of Fractures and Dislocations. R. Broomhead 39 pp Leeds Jowett & Sowry, Limited 3/6d

Mr Reginald Broomhead is one of the younger British surgeons, who has accepted heavy responsibilities as head of the large Orthopaedic Department of the General Infirmary at Leeds. "Summary of the Treatment of Fractures and Dislocations" may be truly called "multum" in thirty-nine pages. Part I of the booklet is a general consideration of fractures written in outline form. Part II consists of some thirty odd pages of treatment. These tables are arranged under headings for fractures of the upper extremity, the lower extremity and the spine, and for dislocations of the main joints. The headings include the region of the fracture, methods of reduction, primary splinting, position, instruction to patients, secondary splinting, methods of physical therapy and the expected time of resumption of work. As Mr Broomhead says in his preface, the dogmatic statements which he makes in regard to the duration of splinting and of the physical therapy treatment represent only approximate averages. He courteously states that his idea of the summary had its inception in the plan in operation on the Fracture Service of the Massachusetts General Hospital. The brochure is designed for students and for general practitioners. It is to be warmly commended.

One Hundred and Fifty Years of Publishing 1785-1935 42 pp Philadelphia Lea & Febiger

The publishing house of Lea & Febiger so well known through its *American Journal of Medical Sciences* and its *Gray's Anatomy* presents an extremely interesting history. Its founding was made possible by a loan in 1785 from Lafayette to Mathew Carey, who confined its very early activities to general journalism. Included among its publishings at a later date were the original writings of Cooper, Irving and Poe. From 1859, however, all of its interests and efforts have been entirely medical. The coming of Osler to America and the later publishing of his system are among its accomplishments. Many of the leading medical texts and writings, as, for example, those of Cushny, Joslin and Mackee, bear the Lea & Febiger symbol. The sketch, though short, is quite illuminating and informative.

The Vitamin B Requirement of Man George R. Cowgill 261 pp New Haven Yale University Press \$4 00

This book is written by probably the greatest authority in the field of vitamin B research. It recounts in simple and very readable English the num

erous carefully controlled animal experiments which the author and his associates have made since 1921. The general problem of beriberi and the arguments for and against its classification as a disease due to deficiency in vitamin B are carefully and systematically recorded. All of the experimental and clinical observations regarding the beriberi are critically examined. Diets are analyzed for their vitamin B content and the minimal vitamin B contents of the human dietary are calculated according to a general formula derived from experimentation with various animals. A chapter of great interest to the modern clinician is that in which is discussed the relation of vitamin B to various clinical conditions such as anemia anorexia certain neurological conditions etc. This chapter is by its nature frequently speculative and not wholly in keeping with the strictly scientific aspects of the remainder of the book. The bibliography is unusually complete and well documented. The printing is excellent. The book is valuable as a model of research and intelligent writing. It is highly recommended not alone for the students of vitamin B research, but for the forward looking clinician and the worker in the field of diet and nutrition.

Mental Health Past Present and Future Arthur Hiller Ruggles, M.D. 104 pp. The Colver Lectures 1932. Published for Brown University Providence R. I., by The Williams & Wilkins Company Baltimore 1934.

This little book reviews briefly the history of our changing ideas regarding mental disease. There is much of interest, although nothing new is added to the history of the subject. Details are given however which are not easily found elsewhere particularly in regard to the work of Miss Dix in the State of Rhode Island. A long extract is given from an important contribution by her published in the *Providence Journal* April 10 1844 in which she describes a famous case of insanity in a man confined to a dungeon in Little Compton Rhode Island. Although the article is not written over her own signature there seems to be little doubt that she was the author. It was the history of this tragic case that Miss Dix presented to Mr. Cyrus Butler a business man, who was so spellbound by her story that he gave a large sum of money immediately which served as the foundation of the Butler Hospital in Providence.

Dr. Ruggles outlines what has happened in the ninety years since Miss Dix started a movement in this country which ultimately reached wide proportions. Most of the material is well known and need not be reviewed here. Of more importance however is the third section of the book which deals with mental health of the future. Dr. Ruggles believes that the important developments in the general field of medicine, such as the progressively better hospital care of patients and preventive measures will be

applied more definitely to the problem of mental disease in the future. Hospitals will be improved, staffs better trained and the public will become more used to the care of patients with mental disease, just as they have become acquainted with the hospitalization of patients with other diseases. He presumes also that the more chronic cases will be segregated in colonies and possibly more of them will be boarded out under proper supervision. Along with this the improvements made by scientific research will be applied to mental patients exactly as they are applied to patients in general hospitals. Finally Dr. Ruggles points out that although the hospitalization of patients and their special care are necessary the real problem in relation to mental disease lies in a consideration of more strictly preventive measures. Very little has been done to apply the knowledge, gained from a scientific study of breeding in animals, to the human race. "We must learn to breed up and not down." Neurotic stock should not be bred with other neurotic stock. Better hygiene both physical and mental, of the expectant parent, better obstetrics, more care in the early months of life by familiarity with the problems of nutrition, child guidance at an early age and other matters are considered.

The problem is well considered and the conclusions well drawn. One feels that the book could be read profitably by a large section of the lay public and by considerable numbers of the medical profession.

Diabetic Manual for Patients. Henry J. John. Second Edition. 232 pp. St. Louis. The C. V. Mosby Company \$2.00.

This excellent manual will be helpful and interesting to any diabetic patient. In explaining the nature of diabetes the author stresses the central position of the islands of Langerhans. He considers that disease of these islands most commonly follows infections such as tonsillitis or else develops as a result of obesity. Variations in the number or quality of the islands present at birth or due to inheritance he regards as of minor importance as compared with the precipitating factors. In relation to the marriage of a diabetic, however, he advises against a union with anyone in whose family the hereditary taint of diabetes is present. Perhaps such emphasis is most desirable in a teaching manual, yet it leaves almost without mention all the newer information of the interaction between the pituitary and the pancreas.

Excellent chapters upon the treatment of diabetes before and since insulin bring out the immensely improved outlook for the modern diabetic patient. The author's keen interest in diabetic children is apparent in his description of his diabetic camp near Cleveland Camp Ho Mita Koda. Excellent sections upon measurement of the diet and the technique of insulin administration are followed by instruction in the prevention and treatment of coma general hygiene and cooperation of physician and patient.

admission. Under satisfactory analgesia the first stage of labor was progressive, requiring nine hours until full dilatation of the cervix occurred. At this time delivery of a normal full term infant was accomplished by low forceps and episiotomy under drop ether anesthesia. The patient had no unusual hemorrhage and made an excellent anesthetic recovery. Temperature was 98.6, pulse 100, respiration 20.

Twenty-four hours postpartum the patient's tem-

Daily roentgenographic examinations were made which showed a tendency for the collapsed lung to reinflate at the apex. By these examinations the lung had cleared in fourteen days (April 6) and the mediastinal contents had resumed their normal position in twenty days (April 12).

Clinically the temperature, pulse, and respirations became normal on the fourth day following delivery. At that time all subjective symptoms had entirely disappeared. At no time did the patient raise ab-



FIG 1 Showing massive collapse of the left lung with displacement of the heart to the left. Almost complete re-inflation four days later.

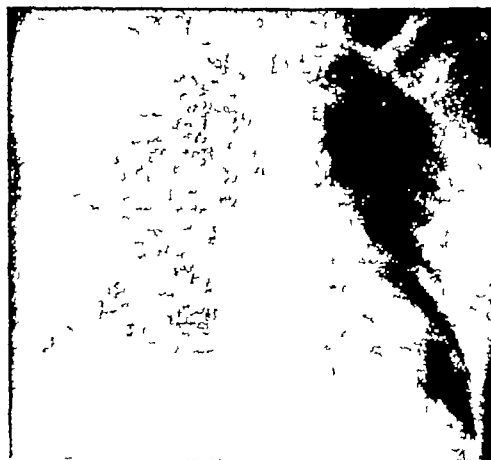


FIG 2 Collapse of the left lung with slight residual atelectasis three days later.

perature became elevated to 101, the pulse to 122, and the respiration to 32. The patient complained of sharp pain in the left chest and of painful coughing with inability to raise mucus.

Physical examination showed dullness of entire left chest with displacement of the heart to the affected side. The cardiac impulse was palpated in the left midaxillary line. A clinical diagnosis of massive collapse of the left lung was made.

The confirmative roentgenographic examination was reported as follows: "Examination of the chest shows the entire left lung field obscured by dullness, uniform in character, obliterating the left border of the heart, left side of the diaphragm and the left costophrenic angle. The left chest wall is definitely contracted and the intercostal spaces are narrowed. The heart and mediastinal contents are displaced to the left."

normal amounts of mucus or mucopurulent sputum.

The treatment consisted of rolling the patient from side to side every two hours during the period of subjective symptoms. She was discharged well from the hospital on the twenty-fourth (April 16) day postpartum.

CASE 2* B. K. Boston Lying In Hospital

Para 2, aged twenty-five years, entered the hospital November 22, 1933, at full term, in mild labor. Six grains of sodium alurate orally and 1/150 grains scopolamine hypodermically was administered on admission. Two hours later the patient received three grains sodium alurate.

She had a slow, progressive labor and was delivered by low forceps and episiotomy at the end of

*Reported through the courtesy of and from the service of Dr. F. C. Irving.

twenty-two hours. The anesthetic for delivery was nitrous oxide oxygen ether. There was no unusual hemorrhage the condition of the patient excellent, and consciousness was regained in eight hours.

Twenty-four hours after delivery the patient experienced sudden respiratory embarrassment. She was slightly cyanotic and made occasional attempts to cough without result. Examination showed temperature 100 pulse 100 and respirations 32. There was definite dyspnea and massive dullness of the entire left chest. Immediate roentgen ray examination was made (November 23) with the following report: "Examination of the chest shows the entire left lung field obscured by dullness which was almost uniform in density obliterating the heart shadow and the costophrenic angle. The heart and mediastinal organs are completely displaced to the left. The left side of the diaphragm is high. The ribs on the left sides are elevated and the intercostal spaces are somewhat narrow. The right lung field is bright, probably due to compensatory emphysema."

Two days later beginning inflation of the left apex was evident both by changing physical signs and by roentgen ray. On the tenth day postpartum (December 1) the roentgenograms showed the left lung fairly well aerated but with the left diaphragm high and the mediastinal contents not yet back to normal position.

Clinically the temperature, pulse and respirations were normal on the fifth day postpartum and all subjective symptoms had disappeared. The treatment consisted of the same methods as those used in Case 1. The patient was discharged home on the fourteenth day of the puerperium.

COMMENTS

These cases are reported because massive collapse of the lung as a postpartum pulmonary complication is either rare or is rarely recognized.

This condition is most likely to be confused with postpartum pulmonary embolus or pneumonia. Because of the extremely favorable prognosis of massive collapse as compared with the other conditions mentioned it is important from the standpoint of both the doctor and patient that an accurate diagnosis be made.

The usual sudden onset, often acute respiratory embarrassment, the massive pulmonary involvement, and the cardiac displacement are features which enable the clinician to arrive at the diagnosis. The roentgenogram and the fluoroscope are of value both for confirming the clinical diagnosis and observing the progress of reinflation.

TREATMENT

The prevention of postoperative pulmonary complications has recently received considerable study.^{21 22 23} Henderson²² has contended that the use of carbon dioxide and oxygen postoperatively produced increased ventilation as a result of the accelerated respiratory rate and the greater depth of respiration induced. Therefore, the effect is to keep the lungs distended and prevent collapse.

King²³, in careful studies was unable to confirm the value of carbon dioxide and oxygen in the prevention of postoperative pulmonary reactions. Other observers feel that it is of definite

value. Bergh considers hyperventilation as a transitory effect and advises the use of 10 per cent carbon dioxide in 90 per cent oxygen for three minutes postoperatively as a valuable prophylactic.

In general three types of treatment have been suggested for this condition.

Tucker²⁰ Jackson²⁴ and other bronchoscopists^{25 26 27} have seen rapid and striking recovery following the bronchoscopic aspiration of mucus from the obstructed bronchus. Their direct observations have been of extreme value, especially in elucidating the mechanism of this condition.

Scott and Cutler²² recommended the use of carbon dioxide and oxygen inhalations in actual treatment of the collapse. This not only relieved the anoxemia, they contended, but increased pulmonary ventilation which should aid in the dislodgment of the obstructing mucus.

During the fluoroscopic examination of patients with massive collapse, Sante^{24 25} noted instances of rapid reinflation which followed turning the patient from side to side. He therefore recommended this simple postural treatment with the idea of securing better drainage and mechanically loosening the obstructing mucus.

The simplicity of this treatment recommends it in this condition where the prognosis is good and spontaneous recovery is the rule. In our hands in these puerperal and other postoperative cases the method has been satisfactory. Therefore, in concurrence with Sehefey²⁶ et al it does not seem that more heroic or complicated forms of treatment are usually indicated.

REFERENCES

1. Pa-teur W.: *Lancet*, 1920 1910
2. Bowen D. R.: *Am. J. Roentgenol.* 21:181 1919
3. Pa-teur W.: *Am. J. Med. Sci.* 100:24 1910
4. King J. M.: *Lancet* 1:170 1917
5. Reagan J. C.: *Lancet*, 2:11 2 1914
6. Bradford, J. H.: *Quart. J. Med.* 1:11 1918
7. Solent G. O.: *Med. Clin. N. A.* 11:165 1917 22
8. Campbell J. V.: *Arch. Otolaryng.* 1:170 1919
9. Pinchin, A. J. S. and Morlock, H. V.: *Brit. M. J.* 1:120 1921
10. Yl-lekka R.: *Minn. Med.* 11:493 1922
11. Mohler H. R.: *Am. J. Med. Sci.* 177:807 1919
12. Elwyn, A.: *Toulon M. & R.* 180:1193 1924
13. Campbell H. E.: *China M. J.* 41:712 1917
14. Briscoe J. C.: *Quart. J. Med.* 12:1293 1919-20 (quoted by Bowen)
15. Bradf. J. R.: *Oxford Med.* 5:127 1920
16. Lichtheim L.: *Arch. f. exper. Path. u. Pharmacol.* 10:161 1918 19
17. Lee W. L.: *Rardin, J. S. Tucker G. and Pendergraas D. P. Ann. Surg.* 88:16 1924
18. Jackson, C. G. and Lee W. L.: *Ann. Surg.* 1:364 1915
19. Hearsh, W. J. and Clerf L. H.: *Ann. Surg.* 25:184 1927
20. Scott, W. J. M. and Cutler E. C.: *J. A. M. A.* 90:1759 1918
21. Sante L. R.: *J. A. M. A.* 88:1529 1917
22. Sante, L. R.: *Ann. Surg.* 82:161 1924
23. Allison, J. F.: *Am. Med.* 25:166 1923
24. Pringle J. M., Brill, S. and Leake, C. D.: *Surg. Gynec. Obstet.* 46:122 1927
25. Henderson T. J.: *A. M. A.* 93:96 1919
26. King J. M.: *J. A. M. A.* 100:1 1923, *Surg. Gynec. & Obstet.* 45:1223 1925
27. Bergh G.: *Alinn. Med.* 14:101 1922
28. Jackson, C. G. and Lee W. L.: *Ann. Surg.* 5:1264 1922
29. Tucker G.: *Ann. Otol. Rhin. Laryng.* 37:1509 1918
30. Hearsh, W. J. and Clerf L. H.: *Ann. Surg.* 85:154 1927
31. Brown, A. L.: *J. A. M. A.* 95:1108 1920
32. Brown, H. and Hill, R.: *Ann. Surg.* 9:101 1920
33. Scott, W. J. M. and Cutler E. C.: *J. A. M. A.* 90:1759 1918
34. Sante L. R.: *J. A. M. A.* 88:1529 1917
35. Sante L. R.: *Ann. Surg.* 82:161 1924
36. Sehefey J. J., Jones H. W. and Clerf L. H.: *Am. J. Obst. Gynec.* 13:728 1920

UNDULANT FEVER · TWO CASES SIMULATING SUBACUTE BACTERIAL ENDOCARDITIS AND PULMONARY TUBERCULOSIS

BY NATHAN SIDEL, M.D.,* AND MAURICE S SEGAL, M.D.*

TWO cases of undulant fever simulating subacute bacterial endocarditis and pulmonary tuberculosis are reported in order to emphasize the practical importance of this disease when considering causes of pyrexia. The accurate diagnosis of undulant fever was obscured in each case because of the findings which were consistent with more common diseases. In all probability, many cases of this disease have been overlooked when fever of a puzzling nature has been present and undulant fever was not considered. Only within recent years has attention been called to the facts that undulant fever may occur not infrequently in temperate zones, and may occur from infected cow's milk. Typhoid, tuberculosis and sepsis are the most common causes of persisting fever, but it is suggested that undulant fever be added to this trio and as a result the diagnosis will be made more frequently.

Although comparatively rare in this part of the world, this disease has long been present in endemic form on the Island of Malta. Undulant fever statistics as to incidence are not very reliable as it has been reportable in Massachusetts since 1930 and its number of cases¹ by years are 1930 (6), 1931 (15), 1933 (11), 1934 (15). In human beings it is a disease commonly found in farmers², laboratory workers and in those who used non-pasteurized, infected milk. The microorganisms isolated from these various sources were found to be identical as far as could be determined by ordinary culture methods by Alice Evans. It is the bovine strain that is responsible for most cases.

The nomenclature of the disease continues to be confusing because of the multiplicity of names. It has variously been called undulant fever, abortus fever, Malta fever, Mediterranean fever, melitensis fever, brucellosis, etc. This report uses the term undulant fever because it is the one most frequently used.

CASE I Beth Israel Hospital No 24240

S K., twenty two, single, white, male podiatrist, living in New Hampshire, was first seen by one of us (N S) on October 4, 1934, because of fever and drenching sweats of five days duration. He had been perfectly well, except for chorea at the age of seven, until September 30 when he felt chilly and then noted fever of 103°F. There was no sore throat, pain, gastro-intestinal or genito-urinary symptoms. The outstanding symptom was the severe, drenching

sweat that occurred several times during the 24 hours but especially during the night between 11 P.M. and 3 A.M. The first examination showed a young man who was not toxic although he was definitely flushed. He was not in distress and was cooperative. The temperature was 102°F, the pulse was 96 and the blood pressure 120/70. The positive physical findings consisted of an early faint diastolic murmur in the third left interspace close to the sternum, a non tender slightly enlarged spleen and a few suggestive petechiae over the abdomen and forearms. The white blood corpuscles were 7,000 per cu mm and the differential was normal. The urine and red blood count were normal. The tentative diagnosis was subacute bacterial endocarditis because of (1) a history of chorea, (2) a diastolic murmur, (3) an enlarged spleen, (4) fever, (5) possible petechiae.

Clinical Course

During the next 16 days the temperature ranged between 98° and 103°F but came down to normal by lysis over a period of one week. The temperature was of the picket fence type and usually highest between 4 A.M. and 8 A.M. The sweats were very marked but did not have any unusual odor. As the temperature began to subside, the intensity of the sweats diminished. Except for the drenching sweats, the only complaints were moderate constipation and slight anorexia. At no time was there delirium, arthralgia, headache, urinary symptoms or any pain. The striking feature was the comparative well-being of the patient even though the temperature was high. The pulse averaged 92. Repeated blood cultures were negative. The white blood cell count averaged 6500 per cu. mm with a differential of polymorphonuclears 70-55 per cent and lymphocytes 20-38 per cent. To rule out pulmonary tuberculosis an x-ray of the chest was taken but was negative. The Widal tests for typhoid and paratyphoid were negative. The Kahn and Hinton tests were negative. The blood chemistry was normal. The urine sediments and stools were normal. The electrocardiogram showed a slight left axis deviation. The diagnosis of subacute bacterial endocarditis seemed most likely until further history was obtained. It was learned that the patient was in the habit of drinking "quantities of raw milk" in New Hampshire. Dr. Henry A. Christian was consulted and he felt that subacute bacterial endocarditis was the probable diagnosis but suggested ruling out undulant fever. A positive agglutination test for undulant fever was reported in the dilution of 1-3650 from the State House and later, 1-5120 from the U. S. Public Health Service. This test caused analysis of the case from the standpoint of undulant fever and the diagnosis was established. The diagnosis of undulant fever seemed

Since submitting this article one of us (N. S.) saw another case of undulant fever. This patient's source of infection was probably infected non-pasteurized milk.

*Sidel, Nathan—Associate in Medicine, Beth Israel Hospital.
Segal, Maurice S.—Resident Physician, First and Third Medical Services, Boston City Hospital, 1935-1936. For records and addresses of authors see This Week's Issue, page 847.

justifiable in view of (1) positive agglutination tests for undulant fever in high dilutions, (2) fever, (3) drenching sweats, (4) enlarged spleen, (5) mild symptoms with high fever (6) history of drinking unpasteurized milk. With supportive therapy, the patient made a very eventful recovery. The spleen was no longer palpable after the fourth day of normal temperature. There was a very mild attack of fever (100°F) which lasted only a few days and occurred after 18 days of normal temperature. On November 27 the patient felt perfectly well and the examination was negative except for the diastolic murmur in the third left interspace. The agglutination test for undulant fever was positive through a dilution of 1:1215. The persistence of the diastolic murmur is probably due to a slight aortic insufficiency, rheumatic compensated, which was either present before the onset of undulant fever or was precipitated by the attack of fever.

Differential Diagnosis

Subacute bacterial endocarditis seemed the most probable diagnosis because of (1) fever, (2) a diastolic murmur in the third left interspace, (3) a history of chorea, (4) fever, (5) splenomegaly, (6) petechiae. However, several blood cultures were negative for streptococcus viridans, and the urinary sediments were negative for red blood cells. The fever in most cases of subacute bacterial endocarditis is insidious in onset and there is usually a prodrome of mild malaise of a few weeks' duration. In this patient the onset of symptoms was abrupt and the first known temperature was distinctly high. The diastolic murmur in this patient may be considered from several angles. Some authorities speak of the rare functional diastolic murmur but for practical purposes it is almost non-existent. The murmur may have been present prior to the onset of the present illness or the present attack of fever may have brought to the fore a quiescent or dormant diastolic murmur originally produced by the chorea.

Typhoid Fever. This condition is ruled out rather readily by the (1) absence of toxicity, (2) the negative blood culture and Widal, (3) the type of temperature curve in this patient.

Malaria. This diagnosis was improbable because of (1) the absence of regularly spaced chills, (2) the negative blood smears for the plasmodia, (3) the negative past history as to residence.

Tuberculosis. Against this diagnosis were the following: (1) the negative physical findings, (2) the negative x ray of the chest, (3) the comparative well being of the patient, (4) the sudden onset of symptoms.

Sepsis. This common cause of pyrexia was ruled out by (1) the absence of any local infection, (2) the absence of leukocytosis, (3) the absence of toxemia.

CASE II From the Third Medical Service (Tufts) of the Boston City Hospital *

J. F., twenty-one, unmarried white dental student, was admitted on October 4, 1934 because of intermittent periods of malaise, fever, chills, and drenching night sweats which had begun about five weeks previously. During the past summer he worked as an assistant chef in a summer camp in the eastern part of New York state. His health was always excellent until mid August when he first noted low back pain, fatigue, and loss of energy. About this time he had a urethritis which persisted for two weeks but his physician assured him that it was not specific. Late in August he complained of fleeting pains through both arms, aches in the back of the neck, some feverishness and chills in the evening. A few days later in early September he took to bed because of the early symptoms getting worse: chills at night, drenching sweats in the early morning hours, slight stiffness of the neck and shooting pains through the eyes on motion. He was in bed for a few days at a time in the next three weeks. On September 27 he felt well enough to return to school. However he thought his "old cig arette cough" was much worse and on a few occasions he had epistaxis. During this time his sputum was blood-streaked but he was not certain whether this came from the nose or trachea. About October 1 he had general malaise, drenching night sweats and vertigo. On October 3 the night before admission, he had a severe chill lasting five minutes and followed by sweating. An x ray of the chest was interpreted as suspicious tuberculosis and the patient was sent to the hospital for study.

The essential findings were as follows: A well developed and well nourished young male who did not appear acutely ill. T 101° F 90 R 22. The face was flushed, tongue clean, moderate cervical adenopathy. Slight dullness over right hilum but otherwise normal lung findings. B P 108/74. Heart examination was normal except for a functional apical systolic murmur. The spleen was just palpable but not tender. There was no skin eruption. The extensors and reflexes were normal.

Clinical Course

The symptoms were essentially fever, drenching sweats, fleeting joint pains and constipation. No peculiar odor to the sweat was observed. The temperature rose to 101°-103° at 5 P.M. but was normal most of the day. After 20 days the temperature remained normal all day and after two weeks he was allowed up and about. The symptoms subsided and disappeared with the gradual descent of the temperature curve. On November 16 he was feeling well. The white blood count averaged 7500 per cu mm and the smear showed 45 per cent lymphocytes. The stool, urine, sputum, blood culture and Widal tests were negative. The agglutination test for undulant fever was positive in dilutions through 1:405 on October 19. A positive test in dilutions through 1:11,000 was obtained on November 2. Chest x rays were variously interpreted but the final opinion was of a normal chest.

Differential Diagnosis

Tuberculosis was the tentative diagnosis because of the cough, fever, sweats, blood streaked sputum and suspicious x ray findings.

It is reported through the courtesy of Dr. Cadis Phillips, Throat and Ear Clinic.

Typhoid fever was favored by the lack of leukocytosis, the spleen enlargement and cough. However, the patient did not look typhoidal, the Widal was negative and the temperature chart was not characteristic.

Infectious arthritis was favored by the joint pains and a rather unusual prominence of the proximal interphalangeal joints. However, the lack of leukocytosis, the fleeting character of the joint pains, the splenomegaly and finally, the positive undulant fever agglutination test ruled against arthritis.

COMMENT

Undulant fever as a cause of pyrexia should be considered as part of the differential diagnosis in every case. In all probability, many cases have been overlooked because another diagnosis seems to be consistent with the findings and undulant fever has not been considered. Some of the reasons for neglecting to consider this disease are (1) the impression that it is associated with goat's milk, (2) that it is present in epidemics only, (3) that it occurs usually in the Mediterranean area. Repeatedly, in the past few years, attention has been called to the fact that cows may be infected with *Brucella abortus* and thus undulant fever may result from drinking raw infected cow's milk. Thus, New England is far from immune to this disease unless all infected cows are eradicated. Medical teaching has emphasized ruling out typhoid, tuberculosis and sepsis as the main causes of fever. It is suggested that undulant fever be added as a fourth cause of pyrexia. Many more cases of this disease will be discovered if it be considered, as the tests for its diagnosis are not difficult ones. Routinely, the undulant fever agglutination test should be done in every case of puzzling fever. The case that simulated subacute bacterial endocarditis shows how valuable the agglutination test may be. We venture the suggestion that some recovered cases of so called mild typhoid fever, vague military tuberculosis and probable subacute bacterial endocarditis may have been cases of undulant fever. It seems desirable to consider undulant fever as the diagnosis in puzzling cases of fever if the agglutination is positive through dilutions of 1:320⁴ or higher. Such dilutions may be considered as indicative of an active or recent infection. As noted in the case reports, our positive tests were in dilutions of 1:5120 and 1:11,000. Fortunately, the prognosis in undulant fever as to life is very good, as the mor-

tality averages only 2-3 per cent. Unfortunately, the prognosis for the diseases simulating undulant fever is rather poor, so that the mental comfort for the family is great if the latter diagnosis can be established as the cause of the pyrexia. Thus, although the disease may last weeks or many months, eventual recovery can be anticipated. Many laboratory tests have been devised for diagnosing undulant fever. The blood serum agglutination test, the intradermal test, the positive complement fixation reaction, the blood culture, the urine and stool cultures are used more or less frequently. For practical purposes, the agglutination test is the best as it is simple and inexpensive and is most reliable. The blood is collected as for a Wassermann test and is sent to the State Laboratory or to the United States Public Health Laboratory in Washington.

SUMMARY

- 1 Two cases of undulant fever, simulating subacute bacterial endocarditis and pulmonary tuberculosis, are reported.
- 2 Characteristic findings of undulant fever as shown by these cases were the following:
 - 1 Daily fluctuating fever
 - 2 Comparative well-being of patient
 - 3 Drenching night sweats
 - 4 Pulse rate only slightly elevated
 - 5 Splenomegaly
 - 6 Fleeting arthralgia
 - 7 Tendency to constipation
 - 8 Normal white count with lymphocytosis
 - 9 Positive agglutination tests for undulant fever in high titre
- 3 It is suggested that undulant fever be considered in the differential diagnosis of every case of fever of undetermined origin.
- 4 Treatment in our cases was entirely symptomatic and supportive. On reviewing the literature, many therapeutic agents have been recommended such as vaccines, passive sera from goats, chemotherapy, arsphenamin and intravenous typhoid. However, none of these have been proved specific for the disease.
- 5 It is suggested that all brucella infected cattle should be eradicated and milk should be pasteurized.

REFERENCES

- 1 Commonwealth of Massachusetts Public Health Bulletin (1930-1934)
- 2 Starr L. E. Undulant fever, its relation to brucelliasis in domestic animals. J. A. M. A. 102:902, 1934.
- 3 Dujniewitsch K. The fourth genital disease (febris undularis bangi). Urol. & Cutan. Rev. 37:634, 1933.
- 4 Gilbert R. and Coleman M. B. Undulant fever in New York State. J. Infect. Dis. 54:305, 1934.

PHYSICIAN AND PATIENT AS A SOCIAL SYSTEM*

BY L. J. HENDERSON, M.D.†

MEDICINE is to-day in part an applied science. Mathematics, physics, chemistry and many departments of biology find applications in this hospital and in the practice of all skillful physicians. Meanwhile, the personal relations between the physician and the patient remain nearly what they have always been. To these relations, as yet, science has been little applied, and it is unlikely that the men in this room are upon the whole as much concerned about their personal relations with patients as a similar group of Boston doctors must have been in the days of James Jackson. A multitude of important new facts and theories of new methods and routines, so far absorb the physician's attention and arouse his interest that the personal relations seem to have become less important, if not absolutely at least relatively to the new and powerful technology of medical practice. This condition, for which nobody is to blame, might perhaps be modified if it were possible to apply to practice a science of human relations. But such a science is barely growing into the stage where applications are possible.

The psychologists and sociologists are the professional custodians of what little scientific knowledge we possess that is conversant with personal relations. But from them we have as yet, little to learn, for they are in general little aware of the problem of practicing what they know in the affairs of everyday life. Indeed skill in managing one's relations with others is probably less common among professional psychologists and sociologists than among the ablest men of affairs or the wisest physicians. So the personal relations of the physician with his patients and with their families are still understood, when they are understood at the empirical level as they were in the days of Hippocrates. Such skill is not only empirical but it is also as we vaguely say intuitive. Sometimes in those favored persons whose perceptions and sensibilities are well suited to the task it results in patterns of behavior that are among the most interesting and, if I may use the word, beautiful that I know. As I came into this room I was saying that if Dr. Frederick Shattuck could only be here he, who knew so much more about my subject than I shall ever know would have been able after I had finished to say many things to you and to me. Doctors like him have always existed and will always exist but their skill dies with them except when their apprentices have learned in some measure to imitate them.

The necessary condition for the effective transmission of acquired knowledge seems to be scientific formulation, and for this purpose some kind of theory, working hypothesis or conceptual scheme is necessary. In this way the natural sciences are preserved and transmitted, and the role of scientific laws and generalizations is seen to be not merely economy of thought, as Mach said but also the effective remembering of the successful and economical thought of the past. A well learned theory is remembered in the right place at the right time and this is a necessary condition for its use. Accordingly my first subject is the theory of the relation between physician and patient.

* * * * *

Four centuries ago, Machiavelli was thinking of certain great problems of human society and writing two famous books. In so doing he reached scientific generalizations about the influence of the sentiments upon the actions of men and, through these actions, upon the fate of human societies. As a whole, these conclusions stand, but from this great and ingenious work of Machiavelli's almost no developments have followed. The science of statecraft and of the influence of the sentiments upon human behavior is little different to-day from what it was in Florence in the 16th century.

In the following century another Florentine, Galileo, published his "Dialogues on Two New Sciences." From this work a great part of modern science has grown out. The two men were perhaps equal in ability and in originality. Why has the influence of one been small and that of the other inestimably great?

In seeking a partial answer to this question, I ask you to consider the names of the subjects that are taught in modern universities, and to divide them, so far as may be, into two classes: first history, politics, economics, sociology, law, literature, etc., secondly logic, mathematics, physics, chemistry, biology, grammar, harmony, etc. Most subjects will fall well enough into one or the other of these two classes. Next I ask you to consider the behavior of the professors who cultivate the two classes of subjects. Those who are adepts of subjects of the second class when they differ, commonly do so at the frontiers of knowledge where growth occurs. Moreover, their differences are ordinarily settled by observation, experiment, mathematical calculation, and logical analysis. But in the subjects of the first class differences of opinion occur at all points and frequently they cannot be resolved. The differences and the disputes seem to be interminable, and there is often no accepted method of reaching a conclusion.

Such a contrast between the behavior of the

An address delivered at the Harvard Medical School Colloquium, Vanderbilt Hall, December 6, 1934, and at a Medical Staff Meeting, Massachusetts General Hospital, January 21, 1935.

†Henderson, L. J.—Abbott and James Lawrence Professor of Chemistry, Harvard University. For record and address of author see "This Week's Issue," page 347.

skilful devotees of the two classes of subjects must depend in part upon differences in the nature of the two classes of subjects, for we cannot admit that a natural selection of professors so nearly perfect as to produce this striking result should occur. Now there is, in fact, one difference between the two classes of subjects which, as I think, is sufficient in a rough approximation to explain the phenomenon. The subjects of the second class do not, in general, consider the interrelations of two or more persons. The subjects of the first class always consider the interrelations of two or more persons. Thus in history, politics, economics, sociology, law, literature, etc., the interrelations and interactions of people are always concerned, but in logic, mathematics, physics, chemistry, biology, grammar, harmony, etc., except perhaps in certain subjects on the borders of biology, they are ruled out. Perhaps this distinction also goes far to explain the curious condition of psychology in our own time. At any rate I am persuaded that it goes far to explain why we have little more than empirical knowledge about the relations of physician and patient.

* * * * *

Willard Gibbs's generalized physico-chemical system is possibly the most famous piece of scientific work that has been done by an American. According to Gibbs, any arbitrarily isolated portion of the material universe may be regarded as a physico-chemical system. In a first approximation, it may be characterized as follows. A physico-chemical system is made up of components. Components are individual chemical substances such as water, salt, etc. They exist in phases. Phases are physically homogeneous parts of the system, either solid, or liquid, or gaseous such as ice, a salt solution, or air. The system is further distinguished by the concentration of the components in the phases, by its temperature, and by its pressure. For many purposes no other factors need be considered.

The Italian sociologist, Pareto, formerly professor at the University of Lausanne, has described a generalized social system which may be usefully compared with Gibbs's physico-chemical system. Pareto's social system is made up of individuals. They are perhaps analogous to the components of Gibbs's system. The individuals are heterogeneous, that is, unequal. They are unequal in size and in age. There are two sexes. They have different educations. They belong to different social and economic classes, to different institutions, to different social structures. They suffer from different pathological conditions, and their mental differences are different far beyond our computation and description. This heterogeneity suggests the heterogeneity of solid, liquid, and gaseous phases in the physico-chemical system.

These individuals possess, or at least manifest, sentiments. I implore you not to ask me to de-

fine the word sentiment, but to permit me to use it without definition to include in its meaning a variety of mental states. For example, I desire to solve a problem, that is a sentiment. You have a feeling that the constitution of the United States should be preserved, that is a sentiment. Affection for the members of your family is a sentiment. The feeling of personal integrity is a sentiment. The desire to express your gratitude for a kindness is a sentiment. The sexual complexes of psychoanalysts, even though they may be unconscious, are for my purpose sentiments.

The individuals who make up social systems also have economic interests, and they have and use language. This use of language is sometimes a non-logical manifestation of sentiments. For example, I read the other day the following title of a sermon, posted up in front of a church in a New England town, "One on God's side is a majority." Language is also sometimes used, though less often than we fondly suppose, to perform logical operations and to express their results.

A physician and a patient make up a social system. And that is my first point.

Many of you, I fear, will think this introduction singularly irrelevant to the subject of my discourse, and so vague and general that it can hardly be of any use in the premises. To them I venture to suggest that it is possible that they may be mistaken, and I ask them to try to follow what I now have to say receptively, postponing criticism until they have received my whole statement.

* * * * *

Two persons, if no more are present, make up a social system. These individuals are heterogeneous. They have and are moved by sentiments and interests. They talk and reason. That is a definition. I shall now state a theorem. In any social system the sentiments and the interactions of the sentiments are likely to be the most important phenomena. And that is my second point. Sometimes the interaction of the sentiments of the individuals making up a social system is hardly less important than gravitational attraction in the solar system.

In the eighteenth century, before a wave of sentimentality swept over the western world, some people saw human relations pretty clearly. They had not been brought up on Rousseau and others whose writings have continued down almost to the present time to influence the intellectual atmosphere in which men have formed this habit of thought. Among the more successful eighteenth century observers of the mechanism of human behavior was Lord Chesterfield. From one of his letters to his son I venture to quote

"I acquainted you in a former letter, that I had brought a bill into the House of Lords for correcting and reforming our present

calendar which is the Julian' and for adopting the Gregorian. I will now give you a more particular account of that affair from which reflections will naturally occur to you that I hope may be useful and which I fear you have not made. It was notorious that the Julian calendar was erroneous and had overcharged the solar year with eleven days. Pope Gregory the Thirteenth corrected this error, his reformed calendar was immediately received by all the Catholic Powers in Europe and afterwards adopted by all the Protestant ones except Russia, Sweden, and England. It was not, in my opinion very honourable for England to remain in a gross and avowed error especially in such company the inconvenience of it was likewise felt by all those who had foreign correspondences whether political or mercantile. I determined therefore to attempt the reformation. I consulted the best lawyers and the most skillful astronomers and we cooked up a bill for that purpose. But then my difficulty began. I was to bring in this bill which was necessarily composed of law jargon and astronomical calculations to both which I am an utter stranger. However it was absolutely necessary to make the House of Lords think that I knew something of the matter and also to make them believe that they knew something of it themselves which they do not. For my own part, I could just as soon have talked Celtic or Slavonian to them as astronomy and they would have understood me full as well so I resolved to do better than speak to the purpose and to please instead of informing them. I gave them therefore only an historical account of calendars from the Egyptian down to the Gregorian amusing them now and then with little episodes but I was particularly attentive to the choice of my words to the harmony and roundness of my periods to my elocution to my action. This succeeded, and ever will succeed. They thought I informed because I pleased them, and many of them said, that I had made the whole very clear to them when God knows I had not even attempted it. Lord Macclesfield who had the greatest share in forming the bill and who is one of the greatest mathematicians and astronomers in Europe spoke afterwards with infinite knowledge and all the clearness that so intricate a matter would admit of but as his words his periods and his utterance were not near so good as mine the preference was most unanimously though most unjustly given to me. This will ever be the case every numerous assembly is mob led the individuals who compose it be what they will. Mere reason and good sense is never to be talked to a mob their passions, their sentiments their senses and their seeming interests are alone to be appealed to. Under standing they have collectively none but they have ears and eyes, which must be flattered and seduced and this can only be done by eloquence, tuneful periods, graceful action and all the various parts of oratory."

It is not only to a mob that reason and good sense cannot effectively be talked. A patient sitting in your office facing you, is rarely in a favorable state of mind to appreciate the precise significance of a logical statement and it is in

general not merely difficult but quite impossible for him to perceive the precise meaning of a train of thought. It is also out of the question that the physician should convey what he desires to convey to the patient, if he follows the practice of blurring out just what comes into his mind. The patient is moved by fears and by many other sentiments, and these, together with reason are being modified by the doctor's words and phrases, by his manner and expression. This generalization appears to me to be as well founded as the generalizations of physical science.

If so far I am right I think it is fair to set up a precept that follows from all this as a rule of conduct. The physician should see to it that the patient's sentiments do not act upon his sentiments and, above all do not thereby modify his behavior, and he should endeavor to act upon the patient's sentiments according to a well-considered plan. And that is my third point.

I believe that this assertion may be regarded as an application of science to the practice of medicine, and that as such it will bear comparison with the applications of physics, chemistry, and biology to practice. However, in this case the application of science to practice is peculiarly difficult. If I am to speak about it, I must in the first place beg explicitly to disclaim any skill of my own. It is not my business to deal with patients, nor has it been my business to perform that kind of operation that Chesterfield so well describes in his letter. Accordingly, what I am now to say to you is in the main, second hand knowledge that I have cribbed from others.* It represents, so far as I can understand what I have seen and heard the soundest judgment, based upon experience, skillful performance and clear analysis in this field. In order to be brief and clear I shall permit myself the luxury of plain assertion.

In talking with the patient, the doctor must not only appear to be, but must be really interested in what the patient says. He must not suggest or imply judgments of value or of morals concerning the patient's report to him or concerning the patient's behavior. (To this there is one exception. When the patient successfully presents a difficult objective report of his experiences, it is useful to praise him for doing well what it is necessary that he should do in order to help the physician to help him.) In all those matters that concern the psychological aspects of the patient's experience few

I owe my information to my colleagues Professors Elton Mayo, F. J. Roethlisberger and their associates. The theory and practice of interviewing developed by Mayo were applied and adapted with the advice and collaboration of the Harvard Department of Industrial Research by the Western Electric Company in the course of a laboratory investigation at the Hawthorne Works of the Company. A valuable description of these Western Electric methods of interviewing may be found in Bingham and Moore, *How to Interview*, New York 1931. Second Edition, 1935. In all this it is possible to discern more than traces of the methods of psychoanalysis, directed however by the usual theoretical and dogmatic accompaniment not to be considered by modified.

questions should be asked and, above all, no leading questions. There should be no argument about the prejudices of the patient, for, at any stage, when you are endeavoring to evoke the subjective aspect of the patient's experience or to modify his sentiments, logic will not avail. In order to modify the sentiments of the patient, your logical analysis must somehow be transformed into the appropriate change of the patient's sentiments. But sentiments are resistant to change. For this reason, you must so far as possible utilize some part of the sentiments that the patient has in order to modify his subjective attitude.

When you talk with the patient, you should listen, first, for what he wants to tell, secondly, for what he does not want to tell, thirdly, for what he cannot tell. He does not want to tell things the telling of which is shameful or painful. He cannot tell you his implicit assumptions that are unknown to him, such as the assumption that all action not perfectly good is bad, such as the assumption that everything that is not perfectly successful is failure, such as the assumption that everything that is not perfectly safe is dangerous. We are all of us subject to errors of this kind, to the assumption that quantitative differences are qualitative. Perhaps the commonest false dichotomy of the hypochondriac is the last of those that I have just mentioned: the assumption that everything not perfectly safe is dangerous.

When you listen for what the patient does not want to tell and for what he cannot tell, you must take especial note of his omissions, for it is the things that he fails to say that correspond to what he does not want to say plus what he cannot say. In listening for these omissions, which is a difficult task, you must make use of every aid that is available. Among the available aids are the results of psychoanalysis. Many of them are well established, but if you wish to preserve a scientific point of view, you must beware of psychoanalytical theories. Use these theories, if you must use them, with skepticism, but do not believe them, for they are themselves in no small measure rationalizations built up by an eager group of enthusiastic students who are unquestionably seeking new knowledge, but whose attitude is strangely modified by a quasi-religious enthusiasm, and by a devotion to the corresponding quasi-theological dogmas. As a useful corrective for undue confidence in the importance of such theories, it is well to recall Henri Poincaré's judicious and skeptical remark: "These two propositions, 'the external world exists', or, 'it is more convenient to suppose that it exists', have one and the same meaning." In truth, all theories, but above all others those that refer to the sentiments of men, must be used with care and skepticism.

Therefore beware of your own arbitrary as-

sumptions. Beware of the expression of your own feelings. In general, both are likely to be harmful, or at least irrelevant, except as they are used to encourage and to cheer the patient. Beware of the expression of moral judgments. Beware of bare statements of bare truth or bare logic. Remember especially that the principal effect of a sentence of confinement or of death is an emotional effect, and that the patient will eagerly scrutinize and rationalize what you say, that he will carry it away with him, that he will turn your phrases over and over in his mind, seeking persistently for shades of meaning that you never thought of. Try to remember how as a very young man you have similarly scrutinized for non-existent meaning the casual phrases of those whom you have admired, or respected, or loved.

Above all, remember that it is meaningless to speak of telling the truth, the whole truth, and nothing but the truth, to a patient. It is meaningless because it is impossible,—a sheer impossibility. Since this assertion is likely to be subjected to both objective and subjective criticism, it will be well that I should try to explain it. I know of no other way to explain it than by means of an example. Let us scrutinize this example, so far as we may be able, objectively, putting aside all our habits of moralistic thought that we acquired in early years and that arise from the theological and metaphysical traditions of our civilization.

Consider the statement, "This is a carcinoma." Let us assume in the first place that the statement has been made by a skillful and experienced pathologist, that he has found a typical carcinoma—in short, that the diagnosis is as certain as it ever can be. Let us also put aside the consideration that no two carcinomas are alike, that no two patients are alike, and that, at one extreme, death may be rapid and painful or, at another extreme, there may be but a small prospect of death from cancer. In short, let us assume, putting aside all such considerations, that the statement has nearly the same validity as the assertions contained in the nautical almanac. If we now look at things, not from the standpoint of philosophers, moralists, or lawyers, but from the standpoint of biologists, we may regard the statement as a stimulus applied to the patient. This stimulus will produce a response and the response, together with the mechanism that is involved in its production, is an extremely complex one, at least in those cases where a not too vague cognition of the meaning of the four words is involved in the process. For instance, there are likely to be circulatory and respiratory changes accompanying many complex changes in the central and peripheral nervous system. With the cognition there is a correlated fear. There will probably be concern for the economic interests of others,

for example, of wife and children. All these intricate processes constitute the response to the stimulus made up of the four words, "This is a carcinoma", in case the statement is addressed by the physician to the patient, and it is obviously impossible to produce in the patient cognition without the accompanying affective phenomena and without concern for the economic interests. I suggest, in view of these obvious facts, that, if you recognize the duty of telling the truth to the patient, you range your self outside the class of biologists, with lawyers, and philosophers. The idea that the truth, the whole truth, and nothing but the truth can be conveyed to the patient is an example of false abstraction, of that fallacy called by White head, "The fallacy of misplaced concreteness. It results from neglecting factors that cannot be excluded from the concrete situation and that have an effect that cannot be neglected. Another fallacy also is involved, the belief that it is not too difficult to know the truth, and of this I shall not speak further.

I beg that you will not suppose that I am recommending, for this reason, that you should always lie to your patients. Such a conclusion from what I have said would correspond roughly to a class of fallacies that I have already referred to above. Since telling the truth is impossible, there can be no sharp distinction between what is true and what is false. But surely that does not relieve the physician of his moral responsibility. On the contrary, the difficulties that arise from the immense complexity of the phenomena do not diminish, but rather increase, the moral responsibility of the physician, and one of my objects has been to describe

the facts through which the nature of that moral responsibility is determined.

Far older than the precept, "the truth, the whole truth, and nothing but the truth", is another that originates within our profession, that has always been the guide of the best physicians, and, if I may venture a prophecy, will always remain so. So far as possible, "do no harm." You can do harm by the process that is quaintly called telling the truth. You can do harm by lying. In your relations with your patients you will inevitably do much harm, and this will be by no means confined to your strictly medical blunders. It will arise also from what you say and what you fail to say. But try to do as little harm as possible, not only in treatment with drugs, or with the knife, but also in treatment with words, with the expression of your sentiments and emotions. Try at all times to act upon the patient so as to modify his sentiments to his own advantage, and remember that, to this end, nothing is more effective than arousing in him the belief that you are concerned wholeheartedly and exclusively for his welfare.

What I have said does not conform in my manner of saying it to the rules that I have suggested for your relations with patients. I have tried to talk reason and good sense to you, following so far as I have been able, the habits of a lecturer upon scientific subjects. With some of you I have surely failed to accomplish my object. To them I suggest that this failure is an excellent illustration of the phenomena that I have been describing, for unless I am mistaken, if you dislike what I have said, it is chiefly because I have failed to appeal to and make use of your sentiments.

THE NEISSERIAN MEDICAL SOCIETY OF MASSACHUSETTS

THE MANAGEMENT OF GONORRHEA*

III The Clinical Diagnosis of Gonorrhea in the Adult Female

GONORRHEA is more often missed than diagnosed in the female. This is disclosed both by its low reported prevalence in that sex compared with its wide prevalence in the male and by the more nearly equal prevalence of syphilis in the two sexes. Gonorrhea is at least twice as prevalent as syphilis in the male. It is spread on the whole, in the same way as syphilis and is acquired by exactly the same age groups. Yet more syphilis than gonorrhea is reported in women.

There are a number of reasons for the quite

general failure to discover gonorrhea in the female, chief among which are the following:

- 1 The laissez-faire attitude of most women (especially married women) toward leucorrhea and mild urinary symptoms
- 2 The variety of conditions of the cervix which produce a leucorrhea
- 3 The inaccessibility of the pelvic cavity and its contents
- 4 The tendency of the medical practitioner to consider all leucorrhoeas as due to cervical lacerations, and all metrorrhagias to be the result of uterine displacements
- 5 The tendency of the surgeon to look upon the surgical complications of gonorrhea as pathological entities (pus-tubes, pelvic inflam-

*This is the third of a series of articles by the Neisserian Medical Society of Massachusetts on the Management of Gonorrhea. The first, "The Laboratory in the Diagnosis of Gonorrhea" was published in the *New England Journal of Medicine* Vol. 212 No. 7 February 15, 1934. The second, "The Clinical Diagnosis of Gonorrhea" was published in the same journal Vol. 211 No. 6 August 2, 1934. The present article is essentially a continuation of the second.

mation, etc) and to overlook the general infection of the genito-urinary tract

6 The relative rarity with which "organisms resembling the gonococcus" can be found in the later stages of the disease, combined with a traditional but unsupportable unwillingness on the part of the medical profession to make the diagnosis on clinical evidence and history, for moral considerations*

7 The too general belief that gonorrhea in the female is to be found only in prostitutes or in the promiscuous, in the face of ample evidence that more than half of the infections are in innocently infected married women and young girls

The diagnosis of gonorrhea in the adult female cannot depend alone upon the discovery of "organisms resembling the gonococcus" They are likely to be found only during the early stages of the infection, during reactivations of the disease and for a short time after a reinfection At other times diagnosis will usually have to rest upon detailed history, thorough examination, and the physician's ability to "sort out" from the mass of evidence that which points to infection with the gonococcus

THREE MAJOR CLINICAL STAGES

Gonorrhea in the adult female is a disease of the genito urinary system characterized clinically by particular activity in three locations, i.e. in the urethra and its appendages, in the cervix, and in the pelvic cavity and its contents A gonorrheal cystitis is rare *The vagina itself is among the least involved of the genito-urinary structures* Gonorrheal rheumatism is less common in the female than in the male Ophthalmia, endocarditis meningitis and proctitis are possible complications Gonorrheal proctitis is more common in the female than in the male

The progress of the disease may be divided, very conveniently, into three stages

- 1 The stage of infection
- 2 The stage of pelvic invasion
- 3 The stage of pelvic degenerative lesions

The stage of infection introduces the disease clinically It embraces the involvement of those structures which lie below the pelvic cavity, i.e. the urethra, urethral glands and Skene's glands, the mucosa of the vulva, Bartholin's glands and the cervix It is seen most often in young, single women They become more easily alarmed at mild or moderate symptoms than married or parous women who are accustomed to leucorrhoeas or other mild genito-urinary complaints, or who, newly married, assume that their symptoms may be due to frequent intercourse The reaction in this stage of

infection is so characteristic clinically that diagnosis should rarely be difficult

The stage of pelvic invasion is the extension of the infection into the pelvic cavity It embraces the involvement of the endometrium, the tubes, the ovaries and the pelvic peritoneum This invasion of the pelvis is usually delayed until after the first or second menstruation following infection, except in some fulminating infections, when it may occur almost at once It may not occur until after the termination of the next pregnancy, which accounts for much "one-child" sterility

The stage of pelvic degenerative lesions is the end result of the pelvic invasion There is little or no evidence of inflammatory activity, although the gonococcus may still be present and there may be a definite endocervicitis due to the persistence of such secondary invaders as the staphylococcus, streptococcus, etc There may be extensive degeneration even though pelvic invasion may have manifested itself clinically only as a slight disturbance of menstruation

Obviously these stages, and particularly the first and second, may overlap Of prime importance is the fact that the three are gonorrhea It is not only the urethritis or the vulvitis or the cervicitis or the "vaginitis" or the leucorrhea described by the general practitioner, or the pus-tube or pelvic inflammation or oophoritis or pelvic abscess seen by the surgeon, or the pathological menopause or the fixed, retroverted uterus, or the lumbo-sacral backache, or the persistent endocervicitis or the neurasthenic "medical shopper" of the third stage It is all of these in varying degree If every physician will interpret what he sees as only a phase of an extensive process, gonorrhea will be diagnosed more frequently and managed more intelligently

SOCIAL AND SEXUAL CONSIDERATIONS

Infection of the adult genito-urinary system with gonorrhea in any other way than through sexual intercourse is so rare that it is an epidemiological curiosity It is possible that an occasional infection may result from the use of a "community" douche nozzle by two or more women, in rapid sequence, if one of them has gonorrhea The term "sexual intercourse" is used here in its broadest sense Actual intercourse is not essential to infection Any contact, however slight, which could transfer pus or infectious seminal fluid from penis to vulva or cervix must be considered Condoms break and prophylactics used inexpertly or applied too late are no guarantee against infection Gonorrheal proctitis occurs in both sexes although, in the female, it is by no means always due to perversions Homosexual practices are not rare If normal sexual intercourse cannot account for the infection, a carefully taken history will consider perversions

*See Clinical Diagnosis of Gonorrhea by the Neisserian Medical Society in the New England Journal of Medicine Vol 11 No 5 August 2 1934

It may be necessary to leave discussion of the sexual history until after the patient has been examined, or until a later date. A definite diagnosis or suspicious clinical evidence will make its eventual consideration imperative. If the patient's own story suggests sexual relationships or that she suspects infection, or otherwise presents an opportunity to discuss the sexual history it may be reviewed at once. The physician may often make the opportunity by adroit questioning.

Gonorrhea is prevalent among married women. The great majority of men acquire gonorrhea while they are single. Two-thirds of the infections are in young men between fifteen and thirty years of age. The peak of prevalence lies in the twenty or twenty-one year age groups. Many of these men carry their premarital infections into marriage. Some women are averse to intercourse during pregnancy after child birth or at the approach of the menopause. Their husbands may be seeking "consolation elsewhere." The fact that a woman may be morally above reproach is no guarantee of her freedom from gonorrhea.

THE DIFFERENTIAL DIAGNOSIS OF GONORRHEA IN THE ADULT FEMALE

Obviously, a complete history and a thorough examination are as essential to the differential diagnosis of gonorrhea as they are to that of any other human ailment. The following is offered as a guide to history taking and examination of the genito-urinary system of the adult female. It should not be necessary to emphasize the importance of a proper examining table, suitable speculum, forceps, sponges, and a good light.

History

The dates of onset, nature and subsequent development of all complaints, signs and symptoms should be ascertained.

The sexual history, at whatever time it is taken, must be correlated with the symptomatology.

1. The chief complaint.
2. Other symptoms subjective and objective.
3. Direct questions as to

(a) Menstrual history. Age at onset, interval, length of period, amount and nature of flow under "normal" conditions for the patient, and date of last period. Missed periods, irregularity of interval, increase or decrease in amount, pain. Relation of any disturbance in the "normal" to marriage, obstetrical history (especially miscarriage or abortion), sexual history or the appearance of symptoms.

(b) Urethral or urinary complaints. Their relation to the onset or exacerbation of leucorrhea, to marriage, to obstetrical history and the sexual history. Note the amount of tea, coffee and water

used. Note whether the urinary complaint is of sudden or gradual onset, is associated with frequency or nocturia. Is there any history or question of diabetes?

- (c) Vaginal discharge. Its relation to menstruation, marriage, childbirth and the sexual history. Note any exacerbation, as leucorrhea may have existed on some other basis before infection with gonorrhea occurred.
- (d) Marital history. How long married? Living with husband or why not? Previous marriages and why terminated? Health of present and former husbands, especially as to "bladder" or "kidney" troubles, prostatitis, strain, gonorrhea, any urethral discharge, mysterious illness or long abstinence from intercourse. Happily married? (Question of infidelity.)
- (e) Sexual history (at this point or later). History of intercourse (whether in or out of marriage) as far back, at least as six months prior to the onset of any genito-urinary complaint. The use and nature of douches, prophylactics and contraceptives. If they have been used, routinely note any failure to follow the routine.
- (f) Obstetrical history (important in the case of sterility resulting from gonorrhea and as a lead to syphilis). Number of pregnancies listed in chronological order with data as to their outcome (miscarriage, abortion, prematurity, stillbirth, living child) with present status of children born alive (age, sex, present health, any record of ophthalmia neonatorum or vaginitis). Instrumental delivery or any other operative obstetrics. Puerperal fever. Sterility not accounted for by contraception.
- (g) Operative history (especially abdominal and vaginal). The removal of any of the pelvic contents, pelvic drainage, surgical treatment of Bartholin's gland or periurethral abscess. Any other abdominal surgery such as appendectomy, uterine suspension, etc.
- (h) Miscellaneous past complaints. Peritonitis, pus-tubes, pelvic inflammation, adhesions, Bartholin's or periurethral abscess (boils), anal discharge.
- (i) The use of alcoholic beverages, especially as a lead to sex habits or probable exposure.
- (j) Previous medical consultation, drug-store prescription or self-treatment of the present illness with diagnosis and nature and duration of treatment.
- (k) Any previous infection with gonorrhea.
- (l) Gonorrhea in any sexual partner. (Patients frequently request examination because they have heard that a partner has gonorrhea or are accused of infecting a partner.)

Genito-Urinary Examination

If the history suggests a recent and active infection, the patient should be asked not to void until the urethra has been examined and smears taken. Otherwise collect a specimen of urine

before beginning the examination, as the bladder should be empty for abdominal and pelvic examination. If there is pus in the urethra, it may help to have the patient waste a portion of urine before collecting the specimen or pus in the urine may be considered, erroneously, as coming from the bladder or kidneys

- 1 The abdomen Operative scars, rashes or eruptions, striae gravidarum, palpation for tumors, tenderness and rigidity
- 2 The inguinal glands Palpable, tender, swollen, abscess, sinus
- 3 The vulva Discharge, lesions, inflammation, swelling, appearance of mucous membranes (velvety, or smooth and shiny) Darkfield examination of any lesion for syphilis (of utmost importance, as two thirds of all female syphilis is discovered in the late stages, and four fifths of the early syphilis in the female has reached the secondary stage when discovered. Thus only about six per cent is diagnosed in the primary, or most favorable stage)
- 4 The urethral meatus Discharge, inflammation, condition of mucous membrane (velvety or shiny), patulous, polyp, caruncle, eversion
- 5 Skene's ducts Appearance of openings, discharge, inflammation
- 6 Bartholin's glands Inflammation, discharge, abscess, cyst scar of incision or excision Palpate Collect specimen for smear if indicated
- 7 The vaginal orifice Virginal, marital, parous
- 8 Palpation of the urethra. Massage the urethra firmly, with a circular motion, moving forward, against the under side of the pubic arch, to express any material in Skene's or the urethral glands. Note whether it appears to be pus, or the caseous, inspissated, glandular secretion *Smear* (Simple stripping of the urethra is not enough)
- 9 The vagina Lesions, inflammation The vagina as a rule, is not involved in the adult, in gonorrhea, though occasionally, especially in young women, it may be severely so. If there is vaginitis, it may be due to infection with *Trichomonas vaginalis*, or the use of very irritating douches or medicated prophylactics or contraceptives, or it may be a senile vaginitis. Occasionally a chancre may be found just inside the vaginal orifice
- 10 If a specimen of urine was not obtained at first, it should be collected at this point.
- 11 The cervix
 - (a) Direct exposure Position, size, discharge, lesions, lacerations, cysts, condition of os Remove all excess discharge as completely as possible, and take smear from within the cervical canal. Squeezing the cervix gently with the blades of the speculum may help in obtaining a satisfactory smear. Darkfield examination of any suspicious lesion is important.
 - (b) Digital examination Position, consistency, lacerations, mobility, tenderness on motion
- 12 The pelvic cavity and its contents (bimanual examination, with bladder and rectum empty)
 - (a) The uterine fundus Size, shape, position, consistency, mobility, tenderness

- (b) The uterine adnexa Palpability, size, position, tenderness
- (c) The vaginal vaults Resistance, thickening, tenderness, masses (Avoid the error of mistaking the contents of the sigmoid as a pelvic mass)

- 13 The anus Discharge, lesions, bleeding, fissures, hemorrhoids Darkfield examination of any lesions (Chancre of the anus is not uncommon) Examination per rectum may help to confirm, or add to, the vaginal examination. It may be substituted for vaginal examination in some virgins. *Rectal examination should not be made during the active stage of a gonorrheal infection*
- 14 Temperature, especially if there is any evidence of pelvic involvement
- 15 Collect specimen of blood for complement fixation test if this test is to be used, but in any case, for study for syphilis

NOTES Smears should be taken repeatedly in all cases in which gonorrhea is suspected. Some of the smears should be taken a day or two before and a day or two following menstruation. They should be studied for pus content as well as for organisms.

There will be pus, and sometimes a faint trace of albumin in the urines of many women who have any degree of leucorrhea. If discarding the first part of the urine does not overcome this error, a catheterized specimen may be required for differential diagnosis. The use of the catheter may not always be advisable if there is active infection of the urethra or Skene's glands.

Apparently, in an occasional, active gonorrhea, a Hinton test may be falsely positive. If there is no other evidence of syphilis, weekly serological tests should be made. If the test is falsely positive, it will gradually revert to negative as the inflammatory reaction subsides.

MAKING THE DIAGNOSIS

When the patient's history has been taken and the examination has been completed, the next step is to sort out of all the data which have been collected, those which point to infection with the gonococcus. The following is an outline which may serve as a guide to the analysis. It considers gonorrhea according to the three major stages of the disease, taking into account the fact that the physician may first see the patient during any one of the three.

Stage I

The physician first sees the patient in the Stage of Infection

1 History of Exposure

- (a) Recent introduction to sexual intercourse, whether in or out of marriage. Gonorrhea is frequently the "wedding present" of a bride.
- (b) Recent change in sexual partner. Includes recent marriage when the patient has had premarital intercourse with another partner.
- (c) Evidence (or suspicion) of recent infidelity of a regular sexual partner, whether husband or paramour. If a married woman is averse to sexual intercourse, the husband may be having extramarital

intercourse To be thought of particularly at the approach of the menopause during pregnancy after childbirth and after operations (especially abdominal)

(d) General promiscuity

(e) Failure to use an otherwise routine prophylactic, even though the sexual partner is the same. (Douche condom medicated jellies or suppositories, and possibly coitus interruptus in old gonorrheal prostatitis or vesiculitis, are to be considered as prophylactics.) The use of prophylactics in early married life may account for the late infection of a married woman by her husband. Such a delayed infection therefore is not proof of the husband's infidelity to his wife

(f) Actual intercourse is not necessary. Any contact which could transfer the gonococcus to the vulva or cervix must be considered

2 Symptoms (recent or present)

(a) Pain or burning (smarting) on urination with frequency and urgency. Although this symptom characteristically introduces gonorrheal infection according to textbooks it is actually very variable in degree is often of short duration and is usually absent. It is to be differentiated from the long standing complaint of gradual onset associated with kidney disease diabetes cystitis polyp carcinoma senile urethritis, frequent micturition the frequent urination of tea and coffee drinkers, and from the complaint of sudden onset following the use of a very irritating douche (inquiry into the reason for taking so strong a douche may lead to a history of exposure to gonorrhea.) Trichomonas vaginitis and epidermophytosis cause irritations of the vulva which burn on urination.

(b) "Vaginal" discharge (or exacerbation of a previous leucorrhea). Amount and nature depend upon the duration of the infection the degree of reaction in the cervix, whether or not the patient douches regularly and how recently the douche was used and whether there was a preëxisting leucorrhea from some other cause. The reaction in the cervix is usually delayed a week or more after the onset of the urinary symptoms (if present) as the inflammatory reaction in the cervix is slower to reach clinical proportions than that in the urethra or vulva.

(c) May be gonorrheal rheumatism

3 Physical findings

(a) Urethral meatus. Characteristically inflamed, swollen gaping and discharging. The degree depends upon the violence of the reaction (ascending fully active, descending)

(b) Skene's glands. Red swollen, often everted openings discharging pus. That portion of the vestibule which contains these openings may be so swollen that it projects well below the meatus.

(c) The mucous membrane of the entire vulva may be inflamed and bathed in pus, depending on when the patient is seen and in relation to her personal hygiene. If the general inflammatory reaction has subsided there may remain only the local reaction about the urethra and Skene's glands and the injected orifices, often pustulous, of Bartholin's glands

(d) Vagina. Rarely involved in the adult, although in some fulminating cases there may be a marked extension of the inflammatory reaction of the vulva into the lower end of the vagina or from the cervix, into the vaginal vaults. This is more likely to occur in younger women who have just passed puberty and whose vaginal mucous membranes have not wholly changed to the adult, many layered and resistant type.

(e) Cervix. Beginning a week or two after infection there may be a marked inflammation the mucosa often having a granular appearance. There may be a copious purulent discharge. Later the inflammation may be moderate, or localized as a more or less circumscribed erosion particularly around the os. The discharge is then chiefly from the os is mucopurulent or a thick, tenacious plug. In parous women, the characteristic reaction may be modified by preëxisting lacerations erosions a pustulous os and endocervicitis.

(f) Smears. The first smear may be negative for organisms resembling the gonococcus in half the cases, even during the height of the activity. The gonococcus may be extracellular in the early days of the infection. If the patient has douched regularly or very recently or treatment is begun at once the organisms may never be found thereafter. The pus content of the smears from Skene's glands in any case and from the nulliparous cervix, is of great significance.

Stage II

The physician first sees the patient in the Stage of Pelvic Invasion. As this stage produces more active symptoms than the first, it more often comes to medical attention

1 History

(a) History of exposure and symptoms of the first stage. The exposure and the symptoms of the first stage may antedate the patient's visit to the physician, with pelvic invasion by many weeks or months. Two or more menstrual periods or a pregnancy may separate the stage of infection from the stage of pelvic invasion.

(b) History of any previous medical opinion medical care drug-store or self treatment for any condition suggestive of the first stage

2 Symptoms. (Whether these symptoms are a part of the history or of the patient's present complaint depends upon when she is seen.)

- (a) One or two menstrual periods appearing a week or two early or the flow prolonged *This may offer the only evidence of pelvic invasion, and represent the entire clinical picture at this stage*
- (b) Moderate to marked dysmenorrhea (new to this patient) whether or not it is associated with a too early period or prolonged flow. There may be marked soreness" or "tenderness" over the uterine fundus
- (c) Pain in either right or left lower quadrant or in both quadrants, not limited to the premenstrual or menstrual days, and new to this patient
- (d) Fever. May be absent or so low as to be missed
- (e) Persistent leucorrhea for weeks or months, with or without marked exacerbation at the appearance of pelvic symptoms
- (f) The patient may be so ill as to require surgical intervention (in a small proportion of the cases) or at least complete bed rest and symptomatic treatment. Between this degree of invasion and the simple disturbance of one or two menstrual periods there is a wide variety and degree of involvement. However, in any case, the essential symptomatology will consist of variations of the just enumerated symptoms. If the invasion is severe and extensive there may be nausea and vomiting, severe back ache and all the evidence of a surgical condition in the abdomen

3 Complications of the Stage of Pelvic Invasion

If the pelvic invasion was severe and extensive, several things may have happened to the patient. These "complications" may appear in the history of a patient who still presents symptoms of pelvic invasion. They will vary according to the medical or surgical advice which the patient has had. The diagnosis may have been made of pelvic inflammation, peritonitis, surgical condition in the abdomen or appendicitis, and

- (a) Drained per vaginam
- (b) Operated upon for anything from "pus-tube" to panhysterectomy
- (c) Operated upon for "appendicitis"
- (d) Miscarriage is not uncommon in this stage
- (e) Ectopic pregnancy may occur as a result of the sperm being able to pass through the inflamed tube, while the fertilized egg is not

4 Physical findings

- (a) Abdomen. Tenderness over uterine fundus or in either lower quadrant or in both, rigidity, or a recent operative scar. Bimanual examination may disclose only tenderness and resistance in one or both vaginal vaults, a tender, fixed uterus, or variable masses, indefinite or defined in either or both vaults. The findings may not "agree" at all with the complaint. The patient who suffers severe pain and is acutely ill may present only fever, tenderness and resistance in the vaults and a tender, fixed uterus. A patient with little or no pain, and not apparently ill, may have large pelvic masses, representing enormous pus tubes. Occasionally it may be difficult to differentiate the stage of pelvic invasion and an ectopic pregnancy or a tubal abortion. The Asch-

heim Zondek test may be of use in such a case

- (b) Urethra. There may be more or less inflammatory reaction about the urethra and Skene's ducts, depending upon the rapidity with which pelvic invasion has followed the initial infection, or how the infection has persisted in Skene's glands. There may be only the patulous, noninflamed meatus surrounded by a smooth, shiny "worn" or "denuded" mucous membrane, Skene's ducts may "pout" and pus may be expressed from their openings or the mucosa and the glands may seem to be entirely normal
- (c) Vulva. The inflammatory reaction in the mucosa of the vulva will probably have subsided, leaving only the injected openings into the Bartholin glands (if they were involved) or the same shiny, "denuded" appearance as that around the urethra. Vaginal discharge may vary from little to profuse
- (d) Cervix. The inflammatory reaction in the cervix will usually have subsided until only some erosion and a marked mucopurulent discharge from the os remain
- (e) The patient may have fever in variable degree
- (f) Smears from Skene's glands at this stage may or may not contain organisms resembling the gonococcus, or pus, depending upon elapsed time and "recovery". Smears from the cervix are likely to contain typical organisms (if taken properly) and will always contain large amounts of pus
- (g) There may have been, or there may follow exacerbations of the pelvic invasion as it "lights up", particularly in relation to menstruation and childbirth, and advances from one structure or area to another

Stage III

The physician sees the patient in the Stage of Pelvic Degenerative Lesions

This is the end-result of the pelvic invasion. Persistent pain or vague discomforts, persistent, annoying and irritating leucorrhea, various forms of menstrual disturbance which prognosticate an early, pathological menopause, and many other complaints drive the patient from physician to physician and from surgeon to surgeon

1 History

- (a) History of exposure and of the symptoms of the first stage many months or years before (may be forgotten by the patient), followed by symptoms of the stage of pelvic invasion, and often by operative procedure
- (b) Regular or intermittent pain in either lower quadrant or in both
- (c) Persisting and annoying and irritating leucorrhea, usually thick and tenacious
- (d) Regular or intermittent pain in the lumbar or sacral regions of the back
- (e) Menstrual disturbance which may vary from excessive flow to progressive scant

teness delayed periods missed periods and an early pathological menopause

- (f) As a result of continued and annoying symptoms the patient may have become a "medical shopper" a confirmed neurasthenic, or a museum of operative procedure. These are the patients who have undergone a variety of "partial" operations in which one tube or ovary after the other is removed the uterus suspended or complete panhysterectomy done

- (g) Absolute or "one-child" sterility

2. Physical findings

- (a) Abdomen. There may be deep tenderness in one or both lower quadrants or any operative scar or scars. If manually there may be felt resistance and thickening in the vaginal vaults masses of variable size or a retroverted fixed uterus. Usually the findings are indefinite or in proportion to the complaint, seem negligible
- (b) Urethra. May be patulous with smooth shiny mucosa or it may appear to be normal.
- (c) Skene's glands. Patulous, pointing and may contain expressible discharge containing small numbers of pus cells. Smears may be entirely negative even to pus.
- (d) Vagina. Smooth "senile" appearing mucosa
- (e) Cervix. Mucosa may appear healthy or may be eroded. Leucorrhea variable. Os patulous
- (f) Smears from the cervix usually contain pus but organisms resembling the gonococcus are rarely found and then only at favorable times such as just before or after menstruation or in the event of reinfection or superinfection.

MISCELLANEOUS COMPLICATIONS

- 1 Bartholin abscess usually results from a persistence of the infection in these glands after the stage of infection (Stage I) has subsided. It may be represented by an active abscess, a cyst, a persistent sinus or an operative scar depending upon when the patient is seen
- 2 Gonorrheal rheumatism is not nearly so common in the female as in the male. It occurs most frequently as in the male as a complication of the stage of infection, although, since the stage of pelvic invasion is an active inflammatory process, it may occur during this as well as the initial invasion of the lower genito-urinary structures
- 3 Reinfection. This results from intercourse with an infected partner. It is common among married women and the promiscuous. It keeps the infection active and is more apt to result in complications and extensive pelvic invasion
- 4 Exacerbation. This may be confused with reinfection. It results from sexual excitement sexual intercourse and alcohol

This is essentially a "lighting up" of the original infection, or its extension, due to the persistence of the organisms and their frequent "flushing" to the surface. Its end results are similar to those of reinfection by a sexual partner. It has a well known parallel in the male

IN CONCLUSION

It will be obvious from a careful study of the foregoing that the diagnosis of gonorrhea is not always a simple matter, especially in its later stages. It will be equally obvious that the diagnosis cannot be made in any case unless the physician is willing to spend a reasonable amount of time in taking a careful history and in the thorough examination of the patient.

The physician must first accept the fact that gonorrhea is prevalent among women and that regardless of the "quality" of his patients or their essential morality, the disease is neither respecter of morals nor of social standing. He must, then, so familiarize himself with the nature of gonorrhea that he will suspect it whenever the patient's story or his examination of the patient points toward infection. Obviously in order to become familiar with the pathology of gonorrhea, the physician must know what the normal genito-urinary structures look like. Careful study of the normal whenever the opportunity presents itself is of the very first importance. The frankly active infection is easily diagnosed. The clinical evidence in subsiding or long standing infections will be seen only by those physicians who are so familiar with the normal and with non gonorrheal conditions that they are able to distinguish between them.

The patient's story may not suggest gonorrhea unless she is encouraged by careful questioning to tell the whole story. The examination of the patient unless it is thorough, will not disclose a gonorrheal infection. The patient must be examined on a table in a good light. The examination must cover the entire genito-urinary system. Direct visualization by manual examination and laboratory procedures must be utilized to the full.

Although "organisms resembling the gonococcus" may not be found, their presence in smears is valuable evidence in support of the history and clinical diagnosis of gonorrhea. In any case smears should be studied for pus content. So many smears may have to be examined, even for diagnosis, and certainly during the treatment of the infection, that the physician who must depend upon a distant laboratory will be severely handicapped. Every physician who would attempt the diagnosis or management of gonorrhea in either male or female should own and use a microscope and be expert in the use of the two common stains the Gram stain and Loeffler's methylene blue.

DIGEST OF THE TWENTIETH ANNUAL REPORT OF THE
MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

BY HENRY D CHADWICK, M D *

I have the honor to submit herewith my annual report for the fiscal year ending November 30, 1934, although, as in the past, all figures except those relating to the budget will be given for the calendar year.

It is with much regret that I report the resignation of Dr Roger I Lee as a member of the Public Health Council. Because of his interest and knowledge of public health problems and his willingness at all times to be of service, he had an important part in shaping the policy of the Department. To fill this vacancy the Governor appointed Dr Richard M Smith, who, because of his familiarity with medical problems and especially with pediatrics, will be very helpful.

1 GENERAL MATTERS

The Department has carried on its work throughout the year without having to contend with any serious outbreaks or epidemics. This year, however, has seen the highest incidence of measles ever reported. The other and more serious communicable diseases have shown a gratifying decline in morbidity and mortality.

The pneumonia study and service financed largely by a grant from the Commonwealth Fund has completed its fourth year. The antipneumococcal serum produced and distributed by the Biologic Laboratory is now of greater concentration and potency. There are marked advantages in this as the volume of serum necessary for treatment is reduced and the unit cost is lessened. This serum is now available to physicians in twentythree areas of the State comprising approximately two-thirds of the population. Before the serum could be made available, laboratory technicians in the fortyfive leading hospitals were trained in the Neufeld method of typing so that specimens of sputum could be examined without delay. Physicians were instructed in the therapeutic use of the serum in Type I and Type II cases. This serum is furnished to the attending physician for those cases who have not been ill more than four days. In the Department laboratory over 6000 specimens of sputum have been typed during the period of study. An analysis of the records of the pneumonia patients treated with antipneumococcal serum shows that the proper use of the product has resulted in decreasing the expected case fatality rate of Type I by about two thirds and of Type II cases by about one-half. Thus, definite evidence has been obtained that the lives of many patients ill with these types of pneumonia have been saved by the use of this serum. Antipneumococcal serum is available also for the use of the physicians caring for the 5000 or more men located in the Civilian Conservation Corps camps of the State.

To the Rockefeller Foundation we are indebted for continued financial support in making a study started last year of deaths from cancer. This includes investigation into the etiology of the disease and cancer mortality records. From the same source funds were allotted to make possible a tabulation of the records of the 400 000 school children examined during the Ten Year Program for tuberculosis case finding. A study of the data thus made available will be of great value, particularly in the evidence that can be obtained on the controversial question as to whether an infection with the tubercle bacillus in childhood protects the individual or renders him more liable to contract tuberculosis later in life.

The Commonwealth Fund has made a grant to the Harvard Medical School to carry on through the Pediatrics Department of the Children's Hospital in cooperation with the Department of Public Health an investigation of the value of placental extract in the control of measles. Dr McKhann of the Children's Hospital, and Dr Robinson, Director of the Division of Biologic Laboratories, are working together on the project. In a series of over 1000 children exposed to measles and treated with this extract, the attack was prevented or modified in all but about five per cent. When the extract is used within four days of exposure, the attack is usually prevented. If used after the fourth day and before the rash appears, the attack is modified. The modified disease appears to confer permanent immunity and is the desirable thing to bring about except in infants and debilitated children. In the latter, the disease can be prevented, thereby postponing measles until a later time when the course of the disease is much less serious and but very rarely fatal. We are very optimistic about this extract becoming a valuable agent in the control of measles.

The Milk Control Board, consisting of the Commissioner of Agriculture, the Attorney General, and the Commissioner of Public Health, has given much time to a revision of rules and regulations relating to the sanitary handling of milk. Standards have been established for several different grades which are now ready for submission to the Governor and Council for their approval.

The Department of Conservation, the Metropolitan District Commission, and the Department of Public Health, serving as a Joint Board, prepared a ten year plan for increasing the recreational facilities of the State. The recommendation was made that large tracts of waste or unproductive land be purchased each year which could be reforested, used for the propagation of game, and opened to the public for camping purposes; also that pollution of streams and ponds be prevented wherever possible and that these be stocked for the benefit of the fisherman, and that additional beaches should be purchased and made available to the public.

Milk Regulations. The past year has been unusually free from the point of view of milkborne diseases. No cases of typhoid fever, scarlet fever, or septic sore throat have been directly traced to such a source. Fifteen cases of undulant fever have appeared in almost all of which there was a history of consumption of raw milk from a herd known to be infected with contagious abortion.

The most significant development during the year from the point of view of the protection of the milk supply was in the city of Attleboro, where a milk dealer went to court to challenge the validity of a regulation requiring pasteurization or certification of all milk. This case, which was heard in the Superior Court, resulted in a verdict upholding the regulation, but the case has now been appealed to the Supreme Court. Our latest information, however, is that the plaintiff in the case will withdraw his exceptions, and therefore no decision will be obtained from that court. This is unfortunate as we had hoped for a decision from the Massachusetts Supreme Court. Such regulations however, have been upheld in the supreme courts of five other states.

The following cities and towns in the Commonwealth have regulations in effect requiring pasteurization or certification of all milk: Ayer, Boston, Brookline, Chelsea, Dedham, Fall River, Framingham, Lexington, Newton, Salem, Swampscott, Wal-

*Chadwick Henry D.—Massachusetts Commissioner of Public Health. For record and address of author see *This Week's Issue* page 847.

tham Watertown, and Winchester Attleboro Cambridge Milton, Quincy Stoneham and Wellesley have recently adopted such regulations but they have not yet become effective.

II DISTRICT HEALTH UNITS

Cape Cod Health Bureau The Cape Cod Health Bureau comprising all of Barnstable County with a population of about 32 000 continues to function in a manner satisfactory to the area. No new projects have been developed. It is to be hoped, however that a milk laboratory will be included in its program in the near future. As dairy inspection service is being taken over by the State Department of Agriculture the local health departments will be relieved of much of this routine work. They should, however carry on a milk laboratory as frequent examinations of samples of milk provide the best evidence as to how the milk is handled on the farm. When milk is unclean or improperly cooled the bacterial count is found to be high and the cause should be investigated at once.

The Southern Berkshire Health District The sixteen towns comprising the District, with a population of about 21 000 voted at their respective town meetings on an article in the warrant which would make them officially members of the Health District. Favorable action was obtained in seven towns, namely Becket, Great Barrington, Monterey Mount Washington Richmond, Sheffield, and Tyringham. In the other towns the vote was unfavorable or for postponement. The seven towns have organized to form the legally constituted Southern Berkshire Union Health District, and Dr Mortimer T Cavanagh is Chairman. At town meetings in 1935 the article will be re-submitted in Egremont, Sandisfield New Marlboro Alford Lee Lenox, Stockbridge, West Stockbridge and Otis. It is expected that most, if not all of them will vote to join the union. With this nucleus of towns organized to carry on a constructive health program it is hoped that others will become interested and that eventually all the towns in Berkshire County will be united in one health district. In this way the cost of administration will be spread over a population of 60 000 which would make it possible to carry on a modern health program in this entire area at a minimum cost.

The Nashoba Health District Fourteen towns centering about Ayer with a population of 21 894 make up this District. Much progress toward perfecting the organization and strengthening the program has been accomplished. The people in the area have become more interested in modern health procedures as a result of demonstrations and actual service performed. At the town meetings in 1935 each town will vote on the question of joining together and forming an official Health District. This plan will involve a complete take-over on January 1 1936 of the work which has been carried on under the sponsorship of the Commonwealth Fund as a demonstration.

Local Board of Health Records Many boards of health have been very lax in keeping their records of communicable disease. This has made it difficult to develop future control programs, especially in regard to diphtheria immunization. Through the generosity of the Commonwealth Fund it has been possible to have a member of the Department staff visit boards of health to analyze their records and assist in establishing a better system. Besides the towns in the Southern Berkshire Health District and the Nashoba area, sixteen cities and towns have been given such assistance, and this has been much appreciated by the officials. Funds are available to continue this important service another year.

State Health Districts A re-alignment of areas has been made whereby an additional district has been created increasing the number from six to seven. This was desirable because the Metropolitan District as it existed was too large for adequate supervision by one health officer. The southern section of this district and some of the adjoining towns to the south were made into a new district. The District Health Officers have carried on their work very efficiently. They meet with the Director of the Division of Communicable Diseases once in two months and talk over their problems. At these meetings men prominent in some special field of health work or who have discovered some new method of procedure relating to public health are invited to address them. Visits are also made to the South Department of the Boston City Hospital where Dr Place kindly shows them unusual cases of communicable disease and discusses diagnosis and treatment.

III COMMUNICABLE DISEASE

The total number of cases of communicable disease reported was 113,559 as compared with 83,338 in 1933. This increase was due to the widespread prevalence of measles early in the year in the central and eastern sections of the State. The other diseases that showed an increase were chicken pox bacillary dysentery German measles and whooping cough. The only one of these that contributed appreciably to the death rate was whooping cough. This disease has been the leading cause of death from communicable diseases in children under five for years. As such it merits greater attention from public health authorities. Gratifying declines were registered in several of the more serious diseases. Diphtheria and typhoid reached the lowest levels ever recorded and there was a reduction of nearly 200 deaths from tuberculosis. For the first time deaths from pulmonary tuberculosis fell below the 2000 mark, and the death rate from all forms of the disease was below 60 per 100 000. Infantile paralysis in 1934 was at the third lowest level ever recorded. Scarlet fever reached the lowest level since 1923. No case of smallpox has appeared in the State since February 1932.

Outbreaks No cases of typhoid septic sore throat, or scarlet fever have been traced to milk during the year. Fifteen cases of undulant fever have been reported and in almost all there was a history of consumption of raw milk from a herd known to be infected with contagious abortion. More than the usual number of outbreaks of gastroenteritis have been investigated. The most extensive and explosive outbreak of this disease was traced to a polluted water supply produced by unsupervised workmen who were clearing brush on the watershed.

Anterior Polymyositis (Infantile Paralysis) This disease established a new low level for deaths and with the exception of 1932 the lowest number of reported cases. Our supply of serum was ample with our resorting to additional bleeding clinics. Consultants of the Department saw thirty-six cases with the attending physician.

Diphtheria. This disease furnished the most striking example of the benefit of immunization. The incidence of diphtheria in 1934 was barely one-fifth of the incidence in 1923 when diphtheria immunization began on a large scale in Massachusetts. Only 629 cases were reported as contrasted with 1041 the previous year. There was a reduction of about 40 per cent in cases and 42 per cent in deaths. More and more boards of health are recognizing their responsibility in providing for diphtheria immunization. To aid them in getting appropriations for carrying on this work, letters were sent out near the end of the year to every munic

ipality urging that an item be included in their budgets for this specific purpose. A survey was made by the Division of Child Hygiene of school health work and it was found that the average percentage of children immunized against diphtheria in 174 cities and towns was 48 per cent. This varied from 64 per cent in the larger cities to 41 per cent in the small towns. As two-thirds of the cases of diphtheria are in pre-school children, the greatest effort should be made to protect this group. For the use of boards of health cards are furnished by the Department with the suggestion that they be sent to the parents of all infants when six months old, calling attention to the advantages of immunization and requesting that they take their children to their physician to have it done. If this procedure could be made universal, public clinics would be unnecessary. The family physician would do the preventive work and diphtheria would cease to be a public health problem.

Dysentery, Amebic There were but thirty-one cases reported during the year, which is eight more than in 1933. Of these, a few were traceable to an infection in Chicago during the previous summer but so far as is known there have been no secondary cases. The publicity attending the Chicago outbreak resulted in physicians studying their cases more closely and some laboratories doing routine stool examinations. For this reason perhaps some cases who were simply carriers were diagnosed as having amebic dysentery, with some associated condition which produced symptoms. The diagnostic service which was set up last year as an emergency in conjunction with the Department of Tropical Medicine in the Harvard Medical School has now been transferred to the Bacteriological Laboratory which is now prepared to examine specimens both for the vegetative form of the ameba and for cysts.

Dysentery, Bacillary The greatly increased number of cases of bacillary dysentery is due to the occurrence of several institutional outbreaks. In one of these institutions, several deaths occurred in previously debilitated patients. In some institutions the condition was recognized promptly and by active precautionary measures an extensive outbreak was averted. In all of these instances dysentery bacilli of the Hiss Y strain were isolated. Although no figures as to the incidence of bacillary dysentery in the general population are available, there is very strong evidence that the disease occurs much more frequently than is suggested by the morbidity reports. In the healthy young adult an infection with the Hiss Y strain apparently produces nothing more than a diarrhea of two or three days' duration. Many of the idiopathic diarrheas which may occur from time to time are in reality bacillary dysentery which entirely escapes recognition unless it happens to attack a small child, in whom the classical symptoms are produced.

Encephalitis Lethargica In last year's report reference was made to the outbreak of encephalitis lethargica that occurred in and around St. Louis, the disease being somewhat different from the type of encephalitis usually encountered. The past year has seen the appearance of sporadic cases in this State but there has been no evidence of localization.

Epidemic Cerebrospinal Meningitis Although the reported incidence of this disease was somewhat higher than for last year, the number of deaths reached the second lowest figure ever recorded. This record is probably due more to good fortune than to good management as there is nothing that can be done in our present state of knowledge to guard against this disease.

Gastroenteritis During the past year there have come to the attention of the Department an increasing number of outbreaks of gastroenteritis.

Although two or three of these were of an explosive nature definitely associated with food, the majority presented themselves as nothing more than unusual incidence of gastrointestinal disturbances in a community within a relatively short period of time. These were the type of cases that are frequently referred to as "intestinal gripe." Although there is no evidence that the etiologic agent is related to the organism that causes the usual type of gripe, there is increasing evidence that there is some sort of gastroenteritis that is spread through the respiratory tract. It is popular to attribute these incidents to a water supply as was done in three different communities, yet examination of the water showed no evidence of pollution and the distribution of the cases over a period of one to two months would definitely suggest some other mode of spread. In Fitchburg an extensive and explosive outbreak of gastroenteritis developed as a result of unquestioned pollution of the water supply. This occurred immediately after a heavy thaw with its attendant run-off and was unquestionably due to pollution of the watershed through C W A workers who, in spite of warnings from this Department, had been permitted to work on the watershed without adequate precautions being taken as to the disposal of excreta. Several thousand persons were involved in this outbreak, which, however, was of but short duration. This illustrates the necessity of carefully supervising workmen on watersheds. If by any chance such a worker should be a typhoid carrier, a serious epidemic of that disease might result.

Measles The past year has seen the highest incidence of measles ever reported, reaching a total of 44,817. The disease began to appear around Worcester during the closing months of 1933, becoming widespread in that city and all surrounding towns. As the year closed it had appeared in the Metropolitan area and was increasing rapidly, reaching its peak in March, when almost 10,000 cases were reported. The final result was an epidemic that swept the eastern half of the State. The high incidence of measles brought with it a sharp increase in the death rate. On the other hand, there is considerable satisfaction in the thought that the case fatality rate was lower than in any previous year except 1933. During this epidemic it was possible for Dr. McKhann, of the Children's Hospital to gather further data as to the efficacy of placental extract. The results obtained in the prevention or modification of measles among those definitely exposed to the disease were so encouraging as to warrant a more extensive study in future years.

Pneumonia, Lobar 1934 has seen the end of the wave of lobar pneumonia which went through the winter of 1933-34. The latter part of the year has seen the disease back at a fairly normal figure.

Rabies The past year has seen a definite increase in the prevalence of rabies throughout the eastern part of the State. Two hundred and fifty-one positive heads were reported from the laboratory, as compared with 144 for the previous year. These have been very largely in the Metropolitan area, spreading northward into the eastern section of Middlesex County and the western border of Essex County. One human case of rabies developed, the victim being a five year old child bitten on the face by a dog that was not located. The case was not officially reported as one of dog bite nor was anti-rabic treatment given. Another child, bitten by a proved rabid dog, died of a condition which was at first thought to be rabies but upon review was probably an encephalitis associated with the vaccine. This is one of the very rare complications which may occur as a result of such treatment. Although it occurs but once in several thousand

instances it constitutes but another reason why more active measures should be exercised to control the spread of rabies among dogs and thereby avoid the necessity of subjecting persons to the necessary inoculations.

Evidence is accumulating in this State that the annual one-dose injection confers protection on a dog for a year. It is certain that the bulk of those so treated are actually protected even though an occasional failure may be recorded. Such work has been carried on in quite a number of communities in some the conduct of a dog inoculation clinic has been coordinated with a restraint order which has provided for exemption of those dogs recently vaccinated. This is probably the most effective type of restraint order as the ordinary ninety day restraint order is so irksome to dog owners as to be marked more by its violation than by its observance. There has been some agitation in favor of compulsory inoculation of all dogs. This however is difficult to carry out. It would probably be more practical to provide for free inoculation of dogs as partial return for the license fee. The 1934 Legislature completed an elaborate revision of the dog laws. Included in that was a provision whereby a city or town will be reimbursed by the county for both the cost of the vaccine and the treatment to a sum not to exceed \$50 per individual case. This change will be of considerable benefit to the medical profession as in many instances the physician was in the position in the past of having cared for several members of a family bitten or exposed to a dog without receiving any remuneration whatever for his services. The law also empowers counties to enter into contract for vaccine to be furnished to their respective cities and towns. This may result in a considerable saving.

Scarlet Fever. With only 8391 cases reported scarlet fever reached the lowest recorded level since 1920. At the same time the deaths have fallen to about 75 which will constitute the second lowest death rate ever recorded for scarlet fever. Immunization studies which were begun in the fall of 1931 have been pursued even more actively during 1934 using as an immunizing agent a formalized toxin solution. Through the use of this solution it has been possible to obtain in about 70 per cent of the children so treated a level of immunity sufficient to cause a negative Dick test. Immunization with this solution has been continued as a routine procedure in schools for the feeble-minded and in the Department's hospitals for childhood tuberculosis. In some orphanages and schools children have received this treatment, and the studies have been extended to certain groups of nurses. In Wellesley East Bridge-water and Framingham community programs have been begun, and as the year closed a limited community program is being carried on in the city of Worcester. The effect of this immunization as measured by the prevention of scarlet fever in those so treated has been extremely encouraging, no case having occurred in a child immunized to the point of a negative Dick test. This solution produces reactions which are so mild as compared with those following the usual scarlet fever immunizing agent that if its effectiveness can be demonstrated there seems little doubt as to its popular acceptance.

Septic Sore Throat. Two hundred and one sporadic cases of septic sore throat have been reported. The year was characterized by an apparent absence of any milk borne outbreaks of this disease.

Smallpox. Nearly three years have elapsed since a case of smallpox has been reported in Massachusetts. The last one occurred in Fitchburg in February 1931. From the point of view of the public health this is extremely gratifying provided how-

ever that it does not lull us into a sense of complacent assurance that this freedom from the disease can be maintained without resorting to continued vaccination. The history of smallpox is full of such romances and it must not be used as an excuse for being deceived by the present situation.

Tuberculosis. The last year has seen a decline in both pulmonary and extrapulmonary deaths to figures lower than ever heretofore obtained. For the first time in the history of the State pulmonary deaths fell below 3000 and the death rate from tuberculosis all forms below 50 per 100,000. At the same time there was a slight increase in the total cases reported which suggests a general improvement in diagnostic facilities throughout the State and their use by the practicing physicians. Through the out-patient departments and consultation clinics the four State sanatoria examined 5,640 patients in 1934 an increase of 286 examinations over the previous year. The important rôle which thoracic surgery now plays in the treatment of pulmonary tuberculosis has made it necessary to provide for this essential service on a more permanent basis. The phrenic nerve surgery and bronchoscopic examinations are done in the institutions. Patients who require thoracoplasty have been sent to the Massachusetts General Hospital and in such cases the Board of Health has paid the Hospital at the same rate it had been paying the sanatorium. As this involves a loss to the Hospital of approximately three dollars per day for each patient admitted and the present ward facilities are not sufficient to insure prompt admission of sanatorium cases it has become necessary to make a more comprehensive plan for providing major thoracic surgery for each patient. A tentative arrangement has been worked out with the Hospital by which a sufficient number of beds will be made available at ward rates plus a very modest fee for the surgeon and the Department is asking an appropriation sufficient to meet anticipated charges on such an arrangement.

In order to relieve the long waiting list at the Middlesex County Sanatorium and to make tuberculosis beds in the State sanatoria more freely available to patients in all parts of the Commonwealth, the statute fixing the rate at Rutland was amended by the last Legislature to permit a charge to cities and towns of less than the actual cost of maintenance. A rate of \$10.50 per week was subsequently set by the Department.

For some years it has been obvious that more adequate facilities will have to be provided for the treatment of tuberculosis in the western part of the State. The institutions in that territory have neither the capacity nor the equipment necessary for the modern treatment of tuberculosis and as a result patients are reluctant to accept hospitalization. To meet this need the construction of a 250 bed unit for adult patients with pulmonary tuberculosis on the grounds of the Westfield State Sanatorium has been recommended and a bill providing for this will be introduced into the Legislature. By utilizing the existing facilities a sanatorium would be constructed and maintained at a minimum cost and would be very acceptable to the territory served. When such provision is made it would no longer be necessary to continue the small sanatoria at Springfield, Holyoke and Chicopee and the Hampshire County Sanatorium at Haydonville would no longer be needed. As to whether it is continued would depend entirely upon the action of the Hampshire County Commissioners.

The other sections of the State with the exception of Middlesex and Bristol Counties appear to have sufficient beds for their needs. It is to be hoped that the additional buildings planned for the Middlesex

County Sanatorium will be constructed in the near future

The Ten Year Program came to an end this year and decentralization of the work has begun very satisfactorily. Most of the county sanatoria have started, or are arranging to begin, examinations soon and some of the larger cities have already taken over the work. The State sanatoria are dividing the work with the counties according to geographical location. Children who have been diagnosed during the past years as having tuberculosis or are suspects will be followed up with annual examinations by the State clinic group. A statistical summary of the ten years' work in the school clinics is covered in the report of the Director of the Division of Tuberculosis. Briefly, we may say that 400,000 school children have been examined. These clinics have been held in practically every city and town in the Commonwealth and in some of them twice. This extensive program has brought the subject of tuberculosis, its diagnosis and treatment to the attention of parents, teachers, nurses and doctors and has created, we believe, a consciousness of the problem of tuberculosis which is bound to be of the greatest value in the application of further control measures. It is practical health education.

Typhoid Fever The incidence of typhoid fever continued to decline during 1934, reaching a record low figure both for cases and deaths. There were but 134 cases reported as compared with 162 for last year. At the same time the deaths numbered only thirteen as compared with twenty-two the previous year. No cases were recognized that were directly traceable to either water or milk. The largest local outbreak during the year occurred in Mansfield where four cases occurred simultaneously. Although it was virtually impossible to obtain accurate information, there is no question that these cases were related and directly traceable to a carrier.

The list of known typhoid carriers has grown from ninety-one at the beginning of the year to ninety-eight. Two carriers died from a condition having no relation to their carrier state, two underwent operations in the hopes of curing their condition, and four carriers were removed from the list as cured following gall bladder removal. Carriers found upon investigation of reported cases were thirteen making a rate of 9.8 per 100 cases.

Of particular interest was an investigation carried out in Fall River of routine culturing of typhoid fever cases reported during recent years. Two new carriers were found in this way. The cases of typhoid fever are now so few that it is perfectly feasible to carry out such a program in any community.

Undulant Fever Fifteen cases of undulant fever were reported as compared with eleven the previous year. In all instances the source of infection was apparently raw milk. Several of the victims during the past year have been sadly disillusioned as to raw milk, realizing for the first time apparently that milk from a model dairy might be a vehicle for the transmission of disease. The incidence of contagious abortion among the dairy cattle of the State is very high and the problem of eliminating this disease from the herds is one that is being given a great deal of study by the Department of Agriculture. The possibility of infection from this source is another argument for the general pasteurization of milk.

Whooping Cough With 12,659 cases of whooping cough reported for the year, this disease reached a higher incidence than ever previously recorded. The case fatality, however, was extremely low. Although the death rate shows some decline, whooping cough still causes more deaths in children under

five than any one of the other communicable diseases. It is to be hoped that a vaccine may be developed that will prevent or modify this disease as it is now one of the most serious public health problems.

Gonorrhea and Syphilis About 6,500 cases of gonorrhea and 4,500 of syphilis have been reported this year, which is practically the same number as 1933. No special effort has been made to stimulate, reporting or otherwise the number might have been considerably increased. Two hundred and seventy cities and towns have been represented in the reported cases. The total visits to the fourteen State-aided clinics have shown an increase of 26 per cent which indicates a tendency on the part of the patient to remain under treatment longer and visit the clinic more regularly. Some of the clinics have been reorganized and in one instance an assistant has been added to the staff. There is a gratifying tendency on the part of boards of health of the smaller communities to recognize their obligation to furnish treatment for patients with gonorrhea and syphilis when they cannot employ a private physician. Apparently the established clinics are receiving considerable revenue from this source.

Arsenicals There has been an increase in the demand for arsenicals. About 5400 grams have been distributed at a cost of approximately \$12,000.

Many lectures on the subject of gonorrhea and syphilis have been given and a large amount of literature distributed.

Division of Biologic Laboratories The distribution of biologic products varies somewhat with the incidence of disease. With the decline in diphtheria there is a lessening demand for antitoxin and only about half of the amount is used now as compared with five years ago. Diphtheria toxoid is rapidly replacing toxin antitoxin. In one month recently the amount of toxoid exceeded that of toxin antitoxin being distributed. It is probable that in the near future the manufacture and distribution of toxin antitoxin can be discontinued.

The use of scarlet fever convalescent serum has increased and more towns have availed themselves of the laboratory service in processing blood which they obtained from donors. Placental extract is now prepared at the laboratory for the study being carried on in cooperation with the Department of Pediatrics of the Harvard Medical School. The use of tuberculin for diagnostic purposes has materially increased. Scarlet fever toxoid is prepared for the experimental work being carried on to determine its value as an immunizing agent. Work is being continued on the production of a satisfactory alum precipitated diphtheria toxoid, but as yet none of this material from our laboratory is available for use. A distinct improvement has been made in the antipneumococcic serum. The product is more concentrated and shows less chill producing qualities.

The Wassermann Laboratory reports an increase in the total number of specimens examined for syphilis, the complement fixation tests for gonorrhea, examination of dogs' heads for rabies, and agglutination tests for the bacillus abortus. On April 1, the routine use of the Wassermann tests was discontinued and the Hinton test made the standard method for the examination of blood for syphilis. This change in method permitted the examination of an increased number of specimens with the same personnel and the number of positive diagnoses was increased.

Bacteriological Laboratory The demands on the laboratory have been getting heavier each year. More use is made of it by physicians notwithstanding the decline in the incidence of diphtheria and typhoid. The outbreaks of dysentery in the institutions during the last year and the more thorough

search for typhoid carriers greatly increased the number of stool specimens sent in for examination. The studies of the different methods of pneumococcus typing continue and it has been shown conclusively that the Neufeld method can be substituted for other methods without sacrificing accuracy. This is of great importance as the type of pneumococcus in a specimen can be determined in a very few minutes. Delay is thus avoided and the administration of serum restricted to Types I and II cases.

IV NON COMMUNICABLE DISEASE

Division of Child Hygiene The educational work carried on by this Division is varied but it all has an important bearing on some phase of child health. Beginning with pre-natal and postnatal advice to parents it follows on through the pre-school period with Well Child Conferences and mothers classes. Then come the Summer Round Ups to see that the children are ready to enter school without physical handicaps and that they are vaccinated against smallpox and immunized against diphtheria. Then health education is carried on with the child through teaching hygiene in the schools. The examination by the physician is practical health education if properly and adequately carried out. The supervision of school lunches to see that suitable foods are provided and that the child is taught how to make proper selection is an opportunity to teach nutrition which should not be overlooked. Then examination of the teeth should be used to convey to the child the information that cavities and unclean teeth constitute an unhealthy condition of one of the most important organs of the body which may interfere with growth and development and possibly cause serious disease. An interesting project in the field of school hygiene was carried out in giving 2000 sixth grade children in different types of communities in the State a "Health Awareness" test prepared by the American Child Health Association. The purpose of this is to determine the value of methods and materials used in health education. A bulletin called "Contact for distribution to school superintendents and school physicians is being issued four or five times a year and serves as a medium for bringing to the attention of these officials the newer developments in school medical service.

Nutrition Service The services of the nutritionists have been much in demand by school officials to give advice in regard to school lunches and by welfare departments to supervise food budgets. Early in the year a school lunch committee was appointed made up of the Chairman of the Child Welfare Division of the Massachusetts Federation of Women's Clubs, representatives of the Department of Education and of the Extension Service of the Massachusetts State College, with the Consultant in Nutrition of the Department as Secretary. Surveys were made by responsible women in the local communities for the purpose of finding the needs and to share the responsibility in meeting them. This investigation was made in about 170 cities and towns. When the figures were studied from the returns of the first 47,000 children either bringing their lunches or buying them at school, it was found that only one child out of four had milk only one out of five had fruits and vegetables only one out of seven had dark bread only one out of five had as long as twenty minutes for eating lunch and only one out of nine was getting a hot dish. This indicated that children were eating unbalanced lunches even though nineteen types of organizations were giving assistance. A report was sent to each superintendent of schools concerned noting the needs found and suggesting his appointing a committee to work with him to meet these needs. The

results thus far have been that more needy children have been supplied with lunches more responsible local organizations are working toward improving the school lunches and more nutrition education of children parents and teachers is being carried on.

Courses and lectures were given on nutrition to home economics teachers and nurses. The summer camps for children affiliated with the Massachusetts Tuberculosis League were given more adequate supervision this year than ever before. On request from the camp director a nutritionist would spend two or three days observing and assisting in the preparation of meals. On the basis of our observations recommendations were then made for such changes and improvements as seemed desirable.

Early in the year the Consultant in Nutrition was appointed as an adviser to the State F.E.R.A. She has been called upon many times for advice as to the best way to utilize foods sent in to the State for distribution and as to suitable food budgets to be supplied to recipients of welfare relief. A Buying Guide for families on welfare aid and for persons with much reduced food allowances was prepared and distributed. Much assistance has been rendered to many welfare departments in different sections of the State in planning food allowances and methods of distribution.

Dental Nutrition Study This is the third year that a dental nutrition study has been carried on in cooperation with Doctors Howe and Elliot of the Forsyth Infirmary on the children patients in the State sanatoria. Groups of children have been followed over long periods to observe the effects of adding tomato juice with and without the addition of Vitamins A and D obtained from haliver oil. In several communities where nutritionists are available there has been an effort made to consider cases of active caries as needing the aid of nutritional follow-up but the problem is so large that only the worst cases can be covered.

An important service has been contributed by the Committee on Public Relations of the Massachusetts Dental Society who have asked local dentists to furnish free examinations and consultations to members of 4-H clubs. The use of the dental certificate plan in schools is being urged and is meeting with favor in many communities. Splendid service is being given by the dental clinics and eleven new traveling clinics were established during the year. The dental health education and dental clinic service have developed rapidly in the rural sections. There is evidence of a steady growth in all phases of dental hygiene.

Health Education More time was spent in consultation with visiting nursing associations in the development of local publicity programs. Lectures were given to many groups pamphlets, posters and exhibits were prepared and widely used in the State. Four special numbers of the *Commonwealth* were published, the subjects covered being "The Handicapped," "Adult Hygiene," "Diabetes," and "Health Education." The inclusion of many important papers in these issues greatly increased the demand and made it necessary to print much larger editions.

Public Health Nursing A series of lectures was given in nurses training schools covering subjects pertaining to the control of communicable disease and other phases of public health. Tuberculosis nursing service has been featured in several communities and aid given to local nurses in the development of their programs for case finding and systematizing their work. Assistance has been given in the scarlet fever immunization clinics. Public health nursing institutes were held in six different areas of the State. The general subjects discussed were child health and school and general public

health nursing The attendance and interest shown were very gratifying

Division of Adult Hygiene The Division of Adult Hygiene, although devoting most of its time to the cancer program, has given some study and has issued pamphlets on diabetes, rheumatism, heart disease, and other chronic diseases Over 23,000 pieces of literature have been distributed One issue of the *Commonwealth* was devoted to "Adult Hygiene" The Health Forum, which combines newspaper and radio activities, has been changed during the year, no answers to questions requesting medical advice are given Instead, two medical topics are discussed each week over the radio Both of these articles are printed weekly in the Boston Globe and one is sent to seventy four newspapers throughout the State A new series of radio programs entitled "The Health Review" was started in January Broadcasts sponsored by the Massachusetts Medical Society continued throughout the year Altogether, 143 broadcasts have been given

Cancer The Division of Adult Hygiene has devoted the greater part of the time to the cancer program One issue of the *Commonwealth* was devoted entirely to "Cancer" and another to "Diabetes" Both of these were prepared for general distribution to all physicians in the State as well as to the regular mailing list A Cancer Clinic Bulletin, designed primarily for physicians working in the cancer clinics, is now mailed to about one fourth of the physicians in the State It contains abstracts of articles on cancer and items of interest regarding the cancer program Experience in the cancer clinics has indicated that the publicity methods used have not accomplished the desired results and therefore the program has been changed to lessened activity through the newspapers and to effect a more concerted drive for education of the laity through the medical profession The study started last year of the death records being collected on cancer and tuberculosis has been continued The investigation into the etiology of cancer and the evaluation of can-

cer mortality records, aided by a grant from the Rockefeller Foundation, is progressing A study of cancer patients from admission to death is being carried on A survey of the cancer clinics indicates that the bulk of cancer patients are being referred to the clinics by physicians There has been a steady increase in this trend since the inception of the program State aided clinics are being maintained in Pittsfield, North Adams, Boston, Brockton, Lawrence, Lowell, Lynn, New Bedford, Newton, Springfield, Worcester, Fitchburg, Gardner, and Greenfield.

Pondville Hospital Through the Emergency Public Works Commission, funds have been made available for a much needed service and surgical building and a twenty five bed addition at Pondville. It is expected that these buildings will be ready for occupancy by August, 1935 This will furnish a thoroughly modern operating unit, increase the capacity of the hospital by twenty five beds, and relieve the present congestion in the outpatient department Although there has been a continued growth in all services at Pondville during the year, it is evident that additional service to cancer patients must wait for the completion of the new buildings now under construction There were 1,222 admissions, twelve more than last year The outpatient visits rose to a new total of 4,619 The average length of hospitalization was further reduced from 37.1 to 33.6 days in an attempt to shorten the waiting list for admission, but we believe that any further reduction in the average period of hospital treatment for cancer patients is not desirable from the standpoint of the patients The increase in all branches of medical work has been assisted by the addition of one physician and three nurses to the resident staff Operations increased 14 per cent and autopsies 12 per cent during the year The need for additional employees' quarters was recognized by the engineers of the Emergency Planning Board who recommended a separate dormitory building The request for a 100 bed dormitory has accordingly been included in the 1935 budget

SPORTING EVENT

An accusing finger points to the adverb "almost" as among the more perilous words in the English tongue Last fall Princeton almost defeated Yale on the gridiron It had the better team but Yale won Last September Endeavour almost beat Rainbow She was the better boat but she lost Many a pugilist has almost won his fight just before he took a knockout on the chin

At the moment we are combatants in the greatest sporting event on record—man against the tubercle bacillus For centuries our opponent has held the championship, but for the past thirty years one round after another has been going to man We have reached that perilous stage in the contest when our friends are cheering us on with the conviction that we have almost won

The 1935 round sees us beset with the risk of overconfidence on our own part and the danger of public apathy toward a fight when victory seems as

sured Other contests with cancer, heart disease, diabetes and mental ills distract attention It is to our equal interest that they be fought with vigor But this is possible without menace to our own

Our opponent is still far from being on the mat He is an adroit enemy The pluck and strategy we put into the fight in 1935 and the years ahead will tell whether we almost win by losing or whether the victory shall be complete

The year opens with no new plan of campaign to announce, but last year's triumphs confirm the tried and trusty methods of the past For despite depression and poverty, the death rate has dropped once more

For the first time in human history the chance is ours to wrest the championship from our most ancient enemy The immediate future holds the answer to the question Shall we almost win, or shall we conquer? — Kendall Emerson, *Massachusetts Health Journal*

CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.

CASE 21181

PRESENTATION OF CASE

First Admission A fifty-two year old Russian shoemaker entered complaining of abdominal pain.

For the past fifteen years he had occasional attacks, about one every two weeks, of sour eructations after meals and occasional induced vomiting. The vomitus never contained blood. He had no pain until three months before entry when he began to have attacks of sharp abdominal pain beginning usually in the left upper quadrant and spreading across to the right. The pain, which occurred about once a day usually came on after meals, lasted about an hour and was not relieved by soda. The belching and vomiting had increased. During this period he also felt an inconstant mass in his upper abdomen. There was no history of jaundice or bloody or tarry stools. He had lost four teen pounds in weight in the past year.

His family, marital and past histories are non contributory.

Physical examination showed a fairly well developed and nourished man in no acute distress. The heart and lungs were not remarkable. Just to the right of the midline in the epigastrium was an ovoid moderately hard irregular freely movable, non tender mass approximately 6 by 4 centimeters. Upon firm pressure the shape and location of the mass could be changed and a few minutes later the mass could be felt just under the left costal border. The liver and spleen were not felt. There was no ascites.

The temperature was 99.2°, the pulse 100. The respirations were 20.

Examination of the urine was negative. The blood showed a hemoglobin of 80 per cent. The white cell count was 15,000. 84 per cent polymorphonuclears. Two stool examinations gave positive guaiac tests. A Wassermann test was negative. A bismuth meal showed a small residue in the stomach. The delay in filling the mid portion of the stomach suggested an hourglass stomach.

He was transferred to the surgical service where an exploratory laparotomy revealed an extensive tumor of the lesser curvature and posterior wall of the stomach. A partial gastrectomy and posterior gastro-enterostomy were per-

formed. The pathologic report was adenocarcinoma without involvement of the attached mesenteric glands. He had an uncomplicated convalescence and was discharged two weeks after operation.

Second Admission, nineteen years later

The patient was perfectly well until approximately three months before entry when he began to have attacks of abdominal pain similar to those that he had on his first admission. At this time, while on his way to work after breakfast, he developed colicky pain in his epigastrium which gradually radiated to his lower abdomen. The attacks occurred almost daily, lasted four or five hours and during them he felt nauseated and often vomited. Recently he had developed anorexia and increased constipation had become progressively weak and had lost twenty pounds.

Physical examination showed a well-developed and undernourished man lying quietly in bed. There was a small movable left supraclavicular gland. The heart and lungs were negative. The abdomen was scaphoid and there was a scar to the left of the midline in the upper abdomen. A rectal examination was negative. The blood pressure was 140/75.

The temperature was 98°, the pulse 80. The respirations were 24.

Examination of the urine was negative. The red blood cell count was 3,660,000, with a hemoglobin of 60 per cent. The white cell count was 7,000, 63 per cent polymorphonuclears. Two stool examinations showed positive guaiac tests.

Gastric analysis showed grossly bloody contents and no free hydrochloric acid. A gastro-intestinal series showed a resected stomach with no gross abnormalities. A chest plate was negative except for some aortic tortuosity. A barium enema showed marked spasm of the sigmoid and of the splenic flexure. There was no obstruction of the flow of barium in the colon. Gastroscopic examination showed a well healed posterior gastro-enterostomy stoma. It was of smooth contour except for the right margin where there appeared to be an elevated round whitish red polypoid area.

Approximately two weeks after admission an exploratory laparotomy was performed.

DIFFERENTIAL DIAGNOSIS

DR. BETH VINCENT If you have read the history you will see that it concerns a man of seventy-one years who nineteen years before had undergone an operation for cancer of the stomach. At this operation they found tumor which involved the lesser curvature and posterior wall of the stomach and a partial gastrectomy and posterior gastro-enterostomy were performed. The pathological report showed adenocarcinoma without involvement of the attached mesenteric

glands The individual had a good convalescence and left the hospital in two weeks, apparently an excellent result from a good operation

He comes into view again nineteen years later when he complained, three months previously, of attacks of abdominal pain similar to those he had at his first admission What is the most likely cause of these attacks of pain? We find that he has no lesion of the chest, heart or pulmonary structures, that would suggest a referred pain So I think we must take it for granted that we are dealing with an abdominal lesion He has no temperature and no elevation of white count and I suppose we can safely eliminate an inflammatory condition He has had an operation, under which circumstances one should always give some consideration to a possible obstruction, subacute or complete, but, in this case, the history does not suggest obstruction

Now the positive findings—we have two stools which show blood, and we have a gastric analysis that showed grossly bloody contents Therefore, I should say that this indicated some lesion of the gastro enteric tract with a break in the continuity of the mucous membrane, in other words, an ulceration, either malignant or benign The rectal examination is negative, so we know that it is not a low cancer The x-ray of the colon shows no sign of tumor there, although there was some spasm The x-ray report of the resected stomach states there was no gross lesion visible there I think it is fair to say, however, that the x-ray examination of a stomach that has been operated upon is less likely to be accurate than one of a stomach that has not been operated on

In addition he has a gastroscopic examination which shows something positive, an elevated, round, whitish-red polypoid area near the stoma Although it is nineteen years since the first operation I suppose this man could have either a recurrent or a second occurrence of cancer which would give him blood in his stomach and blood in the stools, and even if it is nineteen years after the Billroth II operation the question may be raised whether he could have a gastrojejunal ulcer, although he has no free hydrochloric acid and probably the gastric juice is not so corrosive as that from a normal stomach I do not think I am able to go any farther than that in the diagnosis I should think he was more apt to have malignant disease of the upper gastrointestinal tract, either a very late and unusual recurrence, or a second occurrence, or, what is less likely, a benign ulcer which, in spite of the resection of the stomach and the low acid values, might be gastrojejunal He has lost so much weight that I expect the operator found a lesion of some seriousness

X-RAY INTERPRETATION

DR G W HOLMES A film of the chest shows

normal lung fields for a man of this age with slight prominence of the aortic knob, no enlargement of the heart, normal position of the diaphragm and clear costophrenic sinuses—a normal chest I have a series of films of the colon but I am unable to find in this collection of films any of the stomach except this one which is negative This is the transverse colon, partially filled with barium One film that was taken on paper shows the spastic contraction of the colon described in the report The mucosal markings in that portion of the colon that was contracted look to me to be perfectly normal The colon does seem rather large when it is fully injected From the notes and from these films I am unable to diagnose a definite organic lesion in any part of the gastrointestinal tract There does seem to be more dullness in the upper abdomen than one usually sees, which may mean some enlargement of the liver

DR CHARLES L SCUDDER I should like to ask Dr Holmes to comment on Dr Vincent's opinion that x-ray examination of a partially resected stomach is not so satisfactory a roentgen examination as that of a stomach not resected

DR HOLMES I think I would agree with Dr Vincent Once the surgeon has interfered with the viscera we do not have a normal picture There are more variations and in order to decide whether a finding is pathologic we have to say first that it is not some variation of the normal If we are looking for a definite lesion such as ulcer we should be able to demonstrate it, but even then it is more difficult as the post-operative stomach is usually high up under the ribs So I should say we are distinctly handicapped

CLINICAL DISCUSSION

DR TRACY B MALLORY I am sorry Dr Leland is not here to describe the operative findings I will read his very careful operative note

"Exploration showed the transverse colon to be lying in the upper angle of the wound in the area usually occupied by the stomach There were dense adhesions between the liver, transverse colon and the stomach Palpation of the region of the pancreas revealed what were thought to be multiple nodular lesions Subsequently these nodules were found to be an involvement of the stomach from the antrum up to the cardia, along the lesser curvature The stomach was freed from the liver by scissors dissection While the stomach was being freed from the liver, an opening was made in the anterior wall of the stomach through a hard cancer mass This permitted exploration, with the examining finger, of the inside of the stomach, showing numerous nodules and papillary projections into the lumen of the stomach The stoma of the anastomosis was distinguishable because of the redundancy of the jejunal

mucosa. It was possible to pass the finger down into the jejunum without difficulty. There was no food in the stomach, and when the opening was made only a few drops of gastric juice escaped. A specimen was removed from within the stomach for microscopic examination." So that I think he pretty thoroughly ruled out any jejunal ulcer. He made a further note saying, "This case is of extraordinary interest in view of the fact that nineteen years have elapsed since the preliminary operation. Although the x ray department failed to detect the evidence of cancer, it is reasonable to bear in mind the fact that the number of nineteen year Billroth II recurrences is very limited."

CLINICAL DIAGNOSIS (PREOPERATIVE)

Carcinoma of the stomach, cardiac portion

DR. BETH VINCENT'S DIAGNOSES

Malignant disease of the upper gastrointestinal tract.

Gastrojejunal ulcer?

PATHOLOGIC DIAGNOSIS

Adenocarcinoma of the stomach

PATHOLOGIC DISCUSSION

DR. MALLORY The patient convalesced from the exploratory operation and left the hospital of course with a hopeless prognosis. A small portion of the stomach was excised for biopsy and showed adenocarcinoma very similar in appearance to that of the one removed nineteen years ago. Histologically it seems to be a little more rapidly growing, a little more definitely malignant than the first one. The interesting question in this case, of course, is whether we are dealing with a recurrence or with the redevelopment of tumor in the same organ but I do not see any possible way to decide which it is.

A PHYSICIAN Was that supraclavicular gland a metastasis?

DR. MALLORY I imagine so but do not see how that helps us.

A PHYSICIAN Could not that gland mean considerable involvement outside the stomach itself? Or would it be present from just tumor of the stomach?

DR. MALLORY A gland in that location frequently is the first evidence of metastases in cancer of the stomach, you see it when you can pick up nothing in the liver or anywhere else.

My own preference is to regard this as a new tumor. Recent statistical studies make it constantly more evident that multiple malignancy is the rule rather than the exception if the patient survives the first tumor long enough to give time for development of a second one.

CASE 21182

PRESENTATION OF CASE

First Admission A twenty five year old white American brakeman entered for treatment of a urethral stricture. He had had gonorrhea six and five years before.

On physical examination several ulcers were found on the penis. He was treated with potassium iodide and mercury and discharged about one week later.

Second Admission, six years later

A plastic operation for a urethral stricture was done and a perineal abscess incised and drained.

Third Admission, one year later, at the age of thirty two

At this admission he entered complaining of "dyspepsia."

Five years before this entry he developed a gnawing sensation high in the stomach which was relieved by food. This sensation was quite mild but was associated with sour eructations. Two years before entry these symptoms returned and were much more severe. Almost immediately after eating he had a very severe pain over his sternum which was followed by vomiting. The vomitus however contained no blood. Soon it was impossible for him to get any food down and he was forced to subsist on liquids. During a six month period he lost sixty five or seventy pounds in weight. Slowly this pain and discomfort abated and he began to eat solid foods with a gain of forty five pounds in weight during the next five months. Approximately ten months before entry all these symptoms recurred. In addition he had a hungry, gnawing feeling in his epigastrium. He lost about fifty pounds in weight and for the past three months was able to take only fluids by mouth.

Physical examination showed a well-developed but poorly nourished man with marked loss of subcutaneous tissue. His pupils were equal, regular and reacted normally. Examination of the heart and lungs was not remarkable. The abdomen was soft, tympanitic and non tender. No masses were felt. The spleen was not felt. The liver was felt 2 centimeters below the costal margin by percussion. The penis showed hypospadias and a punched-out scar on the dorsum. The reflexes were normal.

The temperature was 98°, the pulse 60. The respirations were 16.

Examination of the urine was negative. The blood showed a hemoglobin of 75 per cent and a white cell count of 10,000. 66 per cent polymorphonuclears. A Wassermann test was strongly positive. A gonococcus complement fixation test was strongly positive.

Fluoroscopic examination of the stomach showed slight delay in the passage of liquids.

into the cardia. Solid food remained six minutes. A film showed slight dilatation of the lower end of the esophagus. No definite outline of the stomach was seen. The bismuth in the fluid passed through the stomach almost immediately. A stomach tube met slight spasm at the cardia but passed easily. There were no fasting contents, and following a test meal gastric analysis showed no free hydrochloric acid. A guaiac test was negative. The capacity of the stomach was not attempted because of the exquisite pain during the washing of the stomach.

An esophagoscopy showed normal esophageal walls. The instrument passed into the stomach with only slight resistance. The esophagus was dilated so that a No. 32 bougie could be passed. Following this procedure the patient was able to swallow much better. He refused to stay for further treatment and was discharged approximately two weeks after admission.

Fourth Admission, approximately one month later.

Since discharge he continued to have the same symptoms. Following meals he had a sensation of fullness with discomfort high in the epigastrium. This condition was relieved by vomiting and aggravated by the eating of coarse foods. He was never able to eat a large quantity of food and vomited small amounts repeatedly until relief was obtained. There was no history of tarry stools.

Physical examination was the same as on his previous admission.

On the fourth day an exploratory laparotomy was performed. The whole stomach was firm and thickened, as if it contained an excess of fibrous tissue. The pylorus was patent, the duodenum and jejunum were normal. No tumor was felt at the cardiac end of the stomach close to the esophageal opening. Nothing further was done. It was felt that he had syphilis of the stomach and he was given antiluetic treatment in the form of intravenous salvarsan. He was discharged three weeks after entry to be followed in the Out Patient Department.

Fifth Admission twenty-two years later, at the age of fifty-two.

Following his previous discharge from the hospital he was seen periodically in the Out Patient Department for ten years. Four years after discharge his Wassermann test was still positive. Nine years after discharge he had a flare-up of gonorrhea due to re-exposure. The following year his Wassermann test was reported negative.

Three years before entry he developed pain across the lower lumbar region which varied in intensity, lasted from three to five hours and was relieved by hot applications. It came on every day occasionally two or three times a day, started suddenly and eased up gradually.

These attacks continued for about two years, but gradually became less frequent and less severe. During the past year he had attacks of "stomach pain" coming on chiefly at night after he had been asleep for about three hours. He would awake suddenly with vague discomfort and dull pain which seemed to spread across the whole epigastrium. It did not radiate although it sometimes moved up over the sternum. The attack subsided in about half an hour. There were no cramps, nausea or vomiting associated with these attacks. Since his discharge he had lived on a liquid and soft-solid diet. Solid food appeared to lodge in the epigastrium to the left of the midline and after a short period slipped down below this apparent point of obstruction. If the food did not go down he drank water, put his finger down his throat and vomited. There was no other vomiting except when induced. His bowels were always regular although during the six months before entry they had been looser than usual. They never contained blood or formed food.

Physical examination showed a well-developed but emaciated man not acutely ill. The heart and lungs were not remarkable. In the left upper quadrant near the midline was a cylindrical firm, slightly tender mass which descended upon respiration. The blood pressure was 110/70.

The temperature was 98°, the pulse 80. The respirations were 20.

Examination of the urine showed a very slight trace of albumin and an occasional white blood cell and red blood cell. The blood showed a red cell count of 4,230,000, with a hemoglobin of 85 per cent. The white cell count was 16,800, 85 per cent polymorphonuclears. The stools were negative. A Hinton test was negative.

A gastric analysis showed no free hydrochloric acid even after histamine. The extraction of gastric specimens was not satisfactory because only very small amounts could be obtained. A gastrointestinal series showed that the passage of barium was delayed at the esophageal orifice. About 85 per cent of the barium remained in the esophagus and slowly trickled into the stomach, which was extremely irregular in outline. The normal relief of the stomach was absent and there were numerous irregular broad bands of clearance with minute channels through which the barium flowed rapidly. The stomach was fixed in position. The duodenum was connected to the stomach in a vertical line. The total area occupied by the stomach was about half the normal.

He was discharged to the Out Patient Department ten days after admission.

Final Admission, six months later.

Since discharge his hunger pains had persisted and he had continued on frequent bland

feedings for about one month. During the next three months he lost about ten pounds in weight and did not adhere to his diet. He worked as an elevator man. He soon developed pains and aches in his shoulders, chest and abdomen. Two weeks before entry these apparent rheumatic pains extended all over his body including his chest. Two days before entry he had severe pain in the region of his heart which he did not distinguish from his rheumatic pains. Several observers stated that the pain came on at night and made him scream out. From that time on he had marked shortness of breath and persistent pain and soreness in the left chest. He was finally admitted to the emergency ward in the evening.

Physical examination showed an emaciated, dehydrated, pale, cyanotic man. There was edema of the left chest wall with obliteration of the interspaces. The left chest was flat to percussion with diminished to absent breath and voice sounds. The back was not examined. No heart pulsation was felt in the left chest but it could be palpated 8 centimeters to the right of the midline. The sounds were of poor quality. The blood pressure could not be obtained accurately but was about 50 systolic. The temperature was 100°. The respirations were 40.

Chest tap on the left gave 30 ounces of cloudy yellow fluid containing stomach and upper intestinal contents. Methylene-blue given by mouth immediately appeared in the aspirated fluid. He was admitted to the ward but rapidly failed and died two days after admission.

DIFFERENTIAL DIAGNOSIS

DR. E. D. CHURCHILL. The first two admissions were at the age of twenty-five and thirty-one and were initiated by a stricture of the urethra of gonorrheal origin. On the third admission we begin to encounter the symptomatology of the lesion that concerns us for the rest of this man's life. There are two or three very interesting and unusual aspects of his gastrointestinal symptoms at the age of thirty-two. I call your attention particularly to the very severe type of pain, its position over his sternum, its association with vomiting and its association with difficulty in swallowing. We note the extraordinary violence of these symptoms, in that over a period of six months he lost sixty-five or seventy pounds in weight, and also the fact that this course was self-limited, that his pain and discomfort abated and that he gained forty-five pounds in weight in the next five months. This is quite an unusual story and entirely out of scale with the usual story of a peptic ulcer or with the course of a gastric carcinoma.

At the time that he entered the hospital he was having his second exacerbation and had lost fifty pounds of weight. Again he was able

to take only fluids by mouth. The physical examination at that time was essentially negative except for emaciation, the penile scar and the strongly positive Wassermann. X-ray examination at that time was interesting in that there was some delay in the passage of liquids into the stomach and slight dilatation of the lower end of the esophagus. There is no description given of the stomach itself, although it is stated that the bismuth passed through this organ very rapidly. There was no estimation of the capacity of the stomach because of the exquisite pain. So we have as positive findings failure to outline the walls of the stomach by x-ray and lack of acidity by gastric analysis. I suppose because of this delay and because of symptoms of swallowing an investigation of the esophagus was carried out which was shown to be normal. A No. 32 bougie was passed readily into the stomach. This somewhat relieved the swallowing and the patient left the hospital. One month later he reentered. His symptoms had kept up, again associated with vomiting and inability to eat a normal quantity of food. There is no history of bleeding either on this admission or at the previous admission. An exploratory laparotomy was performed and the stomach described as follows: "The whole stomach was firm and thickened as if it contained an excess of fibrous tissue. The pylorus was patent, the duodenum and jejunum were normal. No tumor was felt at the cardiac end of the stomach close to the esophageal opening." The diagnosis was syphilis of the stomach and nothing was done except to discharge the patient on antiluetic treatment. The convalescence was apparently without incident.

He was followed for a number of years and given vigorous antiluetic treatment. Four years later his Wassermann was positive but nine years later it was negative. The gonorrhea again had an exacerbation. Then he appeared twenty-two years after this diagnosis of syphilis of the stomach, at the age of forty-nine, with further gastrointestinal complaints. This time there seemed to be more pain, particularly across the lower lumbar region, relieved by hot application.

One year before his last admission he suffered from attacks of what he called "stomach pain" coming on at night after he had been asleep for three hours. Cecil's Medicine describes pain coming on at night as one of the characteristics of syphilis of the stomach.

Since his discharge twenty-two years ago he had lived on a liquid and soft solid diet because solid foods seemed to lodge in the epigastrium and only after a period slipped down through what he thought was the point of obstruction. If the food stuck he put his finger down his throat and induced vomiting or swallowed water.

It is interesting that his blood is reported as

DR MCKITTRICK It is quite different from a normal stomach

DR. CHURCHILL Exactly, you have a much shortened tube

DR C M. JONES I had this patient x-rayed by Dr Hampton six months after I left the service because his symptoms were still unreheved We had a hard time to find the stomach in the fluoroscopic examination That might answer Dr McKittrick's question The duodenum was up where the cardia ought to be,—a little tube of irregular stiff tissue It was only at the last that he developed symptoms other than those of a very small viscus

DR MALLORY It is interesting to remember that at physical examination a mass was felt and yet the x-ray examiner says the stomach was so far up he could not palpate it

DR JONES As I remember it the duodenum was quite large and pulled over to the left of the midline He was very thin and they may have palpated the duodenum

DR HOLMES That observation was made when the patient was standing I think it would be very difficult to feel the stomach

CLINICAL DIAGNOSES

Limitis plastica
Dilated esophagus
Rupture of esophagus
Left empyema
Hypospadias

DR E D CHURCHILL'S DIAGNOSES

Syphilis of the stomach
Esophageal dilatation
? Perforation of esophagus
Pulmonary atelectasis of the left lung
? Pneumonia
? Empyema

ANATOMIC DIAGNOSES

Syphilis of the stomach, healed
Perforated ulcer of the cardio-esophageal junction
Subdiaphragmatic abscess with perforation into the pleural cavity
Pyopneumothorax, left
Pulmonary atelectasis, left

PATHOLOGIC DISCUSSION

DR MALLORY At autopsy we found an entire left pleural cavity filled with a mixture of bile, gastric contents and methylene blue The left lung was almost completely collapsed, but was adherent at one point to the diaphragm. Through this little portion of the left lung which had failed to collapse, a sinus tract about a centimeter in diameter was found which went through the diaphragm into a small subdiaphragmatic abscess lying between the spleen and the stomach At exactly the junction of the cardia with the esophagus was a small perforation leading into the abscess cavity, so that there was free communication between the pleural cavity and the lumen of the stomach



Healed Syphilis of the Stomach

The stomach itself was remarkable in appearance. It was barely 15 centimeters in length. The pylorus and 3 centimeters of the prepyloric zone were not abnormal, but the remainder of the organ was reduced to a thick walled tube about 5 centimeters in external character with a narrow lumen barely 2 centimeters in width. The walls consisted of thick, edematous, fibrous tissue and varied from 1 to 1.5 centimeters in thickness. The mucosa was flat and devoid of rugae but showed no ulcerations except for the single perforation at the cardiac orifice.

Microscopically the mucosa throughout the area of involvement is completely replaced by a layer of pavement epithelium essentially like that of the normal esophagus. In the pyloric antrum it is not abnormal. The muscle layers have been completely replaced by dense acellular, rather hyaline connective tissue, in which focal collections of lymphocytes and plasma cells are numerous. There is nothing that could be recognized as specific for or even particularly characteristic of syphilis. I see no reason to hope that Levaditi stains will help us since this man's syphilis was adequately treated and presumably cured twenty years ago. Nevertheless I agree entirely with Dr. Churchill that the overwhelming probability in this case is that

we are really dealing with syphilis of the stomach—or rather its end results.

Syphilis of the stomach is, of course, a disease which is often diagnosed but rarely proved. Hartwell¹ in 1925 reviewed the subject carefully and of 200 reported cases was able to pick out only 25 which he thought were acceptable. In only one of these 25 in fact, McNee's² case, were spirochetes demonstrated. Wharthur subsequently published an additional case and is said by Stokes to have seen several more.

The freedom of the antrum from involvement is of interest in connection with Dr. Churchill's speculation about pernicious anemia. Menlengracht has recently assayed the various portions of the stomach in an effort to determine the area where Castle's "intrinsic factor" is produced. He found that this was present in large amounts in the pyloric region and absent in the fundus. This case would seem to support his contentions.

A PHYSICIAN	How about the liver?
DR. MALLORY	It was normal.
A PHYSICIAN	Was the esophagus dilated?
DR. MALLORY	Not to any significant degree.

REFERENCES

1. Syphilis of the stomach. Hartwell, John A. Ann Surg. 51:747, 1915.
2. Syphilis of the stomach. McNee, J. W. Quart. J. Med. 15:215, 1921.

SIDEL, NATHAN M D Harvard University Medical School 1923 Assistant Professor of Medicine Tufts College Medical School Associate in Medicine Beth Israel Hospital and Junior Visiting Physician, Boston City Hospital Address 483 Beacon Street Boston, Massachusetts Associated with him is

SECAL, MAURICE S B S, M D Tufts College Medical School 1932 Teaching Assistant Department of Physiology Tufts College Medical School, 1932-1933 Resident Physician, First and Third Medical Services, Boston City Hospital 1935-1936 Address Boston City Hospital Boston Massachusetts Their subject is "Undulant Fever Two Cases Simulating Subacute Bacterial Endocarditis and Pulmonary Tuberculosis" Page 816

HENDERSON, L J A B, ScD, M D Harvard University Medical School 1902 Abbott and James Lawrence Professor of Chemistry, Harvard University His subject is "Physician and Patient as a Social System" Page 819 Address Morgan Hall, Fatigue Laboratory Soldiers Field, Boston, Massachusetts

CHADWICK, HENRY D M D Harvard University Medical School 1895 Formerly, Superintendent of the Westfield State Sanatorium and Tuberculosis Controller in Detroit, Michigan Now Massachusetts Commissioner of Public Health His subject is "Digest of the Twentieth Annual Report of the Massachusetts Department of Public Health" Page 830 Address State House, Boston, Massachusetts

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY*

THOMAS ALMY, M.D., Chairman, 140 Rock Street, Fall River, Mass	C J KICKHAM, M.D., Secretary, 524 Commonwealth Avenue Boston, Mass
---	---

A REVIEW OF THE DIAGNOSIS AND TREATMENT OF GONORRHEA IN WOMEN

Understanding of the significance of a gonorrheal infection in women has undergone considerable change in the last few years. Previously it was limited to the fact of infecting organisms in the discharge from the urethra and cervix with most of the consideration given to a search for a "treatment" which would successfully eradicate these organisms. Because such treatments were not very successful in many cases the idea was not infrequently held that the infection in women was almost incurable. On the other hand, various manifestations of pelvic inflammation, especially as encoun-

tered by the surgeon, were usually treated as entities in themselves, removal of affected organs the procedure, and with scant attention paid to the etiological background.

It has been developed, comparatively recently, that there are several important aspects of this subject which demand consideration, if the disease is to be successfully managed.

First consideration The invasion of the urethra and cervix by the infecting organisms, represents but the beginning of an inflammatory process which in the large majority of cases involves the pelvis generally. This involvement varies greatly in different individuals with its severity depending very largely on the persistence or duration of the primary infection.

Second consideration The clinical course of the disease is divided into three stages. The first stage, or stage of invasion, is characterized by the acute inflammation in the urethra and cervix. Its duration is usually six or eight weeks and during this time the infecting organisms are usually easily demonstrable.

The second stage or stage of pelvic invasion. This begins in about six or eight weeks. A marked variation in the severity of its manifestations is observed. The mildest form is that in which the symptoms are limited to one or two excessive menstrual periods, especially periods which occur a week or ten days in advance of the expected time. The more severe cases are characterized by temperature elevation, and the usual symptoms of salpingitis, ovaritis, pelvic peritonitis, etc., with or without demonstrable pus formation. Morbidity, in all cases, sufficient to require bed treatment, occurs in about ten per cent of the cases. The number requiring operative treatment will vary greatly, depending on the habits of thought of the physician in attendance at the time. During this stage the inflammatory reaction in the urethra and cervix has markedly receded, often to escape any but the most careful investigation. The infecting organisms are usually now demonstrated with difficulty. Miscarriages, ectopic pregnancies, appendix operations, a wide variety of pelvic and plastic surgical procedures, represent the essential complications of this second stage.

The third stage of the disease From a pathological standpoint, this is characterized by degenerative changes in the pelvic organs, the end results of a prolonged inflammatory process. Various types of amenorrhea are encountered and these patients often present a complicated picture of ill health. Frequently the problems of many of them are being considered only by the neurologist.

Third consideration Most important, from the standpoint of the "cure" of the infection, is that the eradication of the infecting organisms depends absolutely on elimination of the

* A series of short selected articles by members of the Section will be published weekly.

Comments and questions by subscribers are solicited and will be discussed by members of the Section.

possibility of "reinfection" It is not primarily dependent on the efficacy of some special gonococicide The futility of attempting to "cure the infection, that is to secure repeated negative smears, in a woman who is continuing sex relations with an infected partner would seem too obvious to require comment. It is however usually an important factor in those cases in which difficulty is encountered, in eradicating the organisms It is undoubtedly true in many cases that "reinfection" eliminated, the infection tends to self limitation.

Fourth consideration If in these cases the diagnostic acumen of the physician is limited to "taking smears" he will incorrectly appraise the significance of much morbidity encountered in gynecology Some of these patients seek advice because of the discharge (rarely dysuria) of the first stage, or because of anxiety and exposure The inflammatory reaction in the urethra at this time is very characteristic It should be mistaken for no other condition The fact that the first smear is negative in half of the early cases should not mislead the physician

The majority of these patients however first come to medical attention in the second stage of the disease They then most commonly seek advice because of irregular flow (menorrhagia metrorrhagia) or an acute attack of low abdominal pain By this time the acute inflammation in the urethra has subsided That in the cervix is easily attributed to other factors The irregular flow was formerly often assumed to result from anatomical variations in the pelvis retro-displacements especially, in present-day style to endocrine dysfunction The discovery of a mass in the pelvis raises the surgical implications of a "tumor"

In arriving at a diagnosis the history is of first importance. The significance of frequent menstrual periods, especially in early married life, should be considered carefully An acute appendix" accompanied by an early menstrual period should be viewed with suspicion

In all cases presenting gynecological morbidity the urethra (meatus) should be examined carefully It will frequently suggest a clue to the underlying factor in the morbidity described The acute infections are, of course self-evident The urethra once the site of a gonorrheal inflammation retains permanent evidences of that fact In elderly patients the senile changes encountered sometimes resemble the effects of a previous gonorrheal inflammation. Prolonged massage of the lower urethra will often express pus from the urethral glands, which even if not disclosing the gonococcus is in the majority of cases diagnostically significant. Because in the late cases positive smears are difficult to obtain the diagnosis must depend on the history and a demonstration of the characteristic changes in

the urethra, with the pelvic findings corroborative only in as far as they reveal evidences of active inflammation or its results

Treatment is divided into measures designed to eradicate the infection on the one hand, and those having to do with the management of the pelvic inflammation on the other The efficiency of any gonococicide applied locally will depend largely on the continuity of its application. Intermitent office treatments reduce this efficiency to a minimum. Vaginal suppositories seem to offer the most practical means at our disposal to secure continuity of treatment A boroglycerid suppository containing a half grain of methylene-blue has been found efficient, as has a two or four per cent mercurchrome suppository The latter requires a special formula owing to its unstable chemical characteristics At bedtime each night the patient takes a cleansing borax douche, followed by a hot sitz bath, also containing borax. This latter, in the interest of cleanliness lessens the occurrence of condylomata acuminata and non specific ulcerations Following the sitz bath the patient inserts the suppository and assumes the knee chest position for ten minutes. This latter assures the medication in contact with the cervix The patient reports once or twice weekly for smears and observation and at the same time topical applications to the urethra and cervix may be done

Symptoms indicative of the onset of the second stage, excessive or frequent menstrual periods, are ignored in the absence of temperature elevation The latter developing with or without pain, the patient is kept in bed with long douches and ice bags, and the avoidance of excessive catharsis The average duration of these attacks is three or four days, but there will be encountered those in which pain and temperature persist and which may or may not be accompanied by demonstrable masses in the pelvis.

If temperature and pain persist for ten days, the case usually with advantage is drained by a posterior colpotomy, masses, if present, being opened The results of drainage, in the cases in which there are no demonstrable masses present, are uniformly good On the other hand, not infrequently masses of considerable size develop in the pelvis without morbidity beyond the irregular flow described No cases in the second stage irrespective of the inflammatory masses present should be treated surgically (by vaginal drainage or laparotomy) in the absence of morbidity sufficient to require prolonged bed treatment In a definite number of cases, even large inflammatory masses will entirely disappear with the passage of time. Morbidity alone should be the indication for surgery

Abdominal surgery is with advantage generally restricted to the manifestations of the third

stage of this disease It should then be a supravaginal hysterectomy with removal of both tubes and ovaries If an ovary is left in this type of case, its removal at a subsequent operation is a twenty-five per cent probability

SECOND ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the Committee for the week beginning May 5

Bristol South (New Bedford Section)

Friday, May 10, at 4 00 P M, at the St. Luke's Hospital, New Bedford Subject Obstetrics and Gynecology (First Session) Harold E Perry, M D, Chairman

Hampshire

Wednesday, May 8, at 4 15 P M, in the Nurses' Home of the Cooley Dickinson Hospital, Northampton Subject Cardiovascular Disease (First Session) Robert B Brigham, M D, Chairman

Norfolk (Norwood Section)

Friday, May 10, at 8 30 P M, at the Norwood Hospital, Norwood Subject Cardiovascular Disease (First Session) Hugo B C Riemer, M D, Chairman

Worcester (Milford Section)

Thursday, May 9, at 8 00 P M, at the Milford Hospital, Milford Subject Obstetrics and Gynecology (Third Session) Joseph I Ashkins, M D, Sub Chairman

Worcester (Worcester Section)

Wednesday, May 8 Stated Meeting—no post-graduate session.

Worcester North (Fitchburg Section)

Friday, May 10, at 4 30 P M, at the Burbank Hospital, Fitchburg Subject Dermatology and Syphilis Edward A Adams, M D, Chairman.

MASSACHUSETTS LEGISLATIVE NOTE

House 758 Petition of Curtis M Hilliard for investigation by a special commission (Commissioners of Public Health and Mental Diseases and others) of public health laws and practices within the Commonwealth.

Rejected in Senate, April 23, 1935

MISCELLANY

A TRIBUTE TO DR. ALFRED WORCESTER

On the announcement of the prospective retirement of Dr Worcester from the position of Oliver Professor of Hygiene of Harvard University a large group of his friends assembled at the Harvard Club April 17, to extend their congratulations for the successful administration of his office in dealing with

the psychologic and physical problems of the under graduates of the University

The details of the meeting were arranged by Dr Reginald Fitz in association with Dr Dwight O'Hara and Dr Harold Gallupe Dr Roger I Lee was the toastmaster who, ten years ago, had officiated in the same capacity when Dr Worcester was the guest of a similar group

The first response to the after dinner exercise was by Dr O'Hara, who retold the more significant events, and contributions to medicine which have made Dr Worcester an important factor in professional activities in this section As he closed his address, and after an appropriate quotation from De Senectute by Cicero, he presented the volume to Dr Worcester as a memento of the occasion

Dr O'Hara was followed by addresses by Dr Fitz and Mr W J Bingham, Director of Athletics at Harvard

In responding to the felicitations of the several speakers Dr Worcester assured the company that he was not retiring from medical activities but on the contrary he planned to engage in an attractive field where art and science unite in the specialty of adolescence, for here, he felt, great opportunities exist for leading young people to avoid pitfalls in the way of character development He felt inspired to teach young men especially, in addition to the principles of ethics, the essentials of chivalry in their relation to womanhood The enthusiasm and depth of feeling exhibited by Dr Worcester in this address portrayed his abiding interest in the problems of those who are about to take on the responsibilities of civic activities

The occasion was so enjoyable that there was a unanimous expression of hope that yearly repetition of such meetings would follow this one

HEREDITARY BLINDNESS

To prevent blindness from hereditary eye diseases, facilities should be made available everywhere for the sterilization of those who have such diseases, and premarital certificates regarding the freedom from hereditary diseases of the bride and groom should be required, the annual conference of the International Association for Prevention of Blindness was told in London, April 5, by Dr A Franeschetti of Geneva, Switzerland

Other measures advocated by Dr Franeschetti to reduce hereditary blindness include the special training of physicians, particularly ophthalmologists, in genetics, the education of public health officials and the general public on this subject, a decrease in consanguineous marriages, the collection of precise and complete statistics, and the increased use of social workers in this field

Dr Park Lewis, of Buffalo, N Y, vice-president of the Association, presided in the absence of Professor F de Lapersonne, of Paris, the president, who was unable to attend because of illness Delegates attended from most of the thirty-four nations represented in the Association Lewis H Carris, of New

York City managing director of the American National Society for Prevention of Blindness, represented the United States

The chances of becoming blind are highest in the first two years of life declared Dr M Van Duyse

of Ghent, Belgium in a paper on International Classification of the Causes of Blindness Ophthalmia neonatorum and corneal lesions are responsible for the high proportion of blindness in the early years of life he said.

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1934 AND SEVEN YEAR AVERAGE

MONTH ENDING MARCH 30 1935

Diseases	1935				Average cases reported for week corresponding to Mar 30 for past seven years	1934			
	Week ending Mar 9	Week ending Mar 16	Week ending Mar 23	Week ending Mar 30		Week ending Mar 10	Week ending Mar 17	Week ending Mar 24	Week ending Mar 31
Amebiasis	—	—	—	—	—	1	1	—	—
Cerebrospinal Men	3	—	—	—	1	1	1	—	—
Chicken Pox	123	177	130	98	80	173	115	91	72
Conjunctivitis Inf.	—	—	3	1	2	—	—	9	9
Diphtheria	7	—	8	7	12	2	6	8	6
Encephalitis Epid.	—	—	3	—	—	1	2	—	1
German Measles	191	145	180	131	85	1	4	1	4
Influenza	2	9	4	28	19	2	15	1	1
Measles	997	878	1213	1448	293	36	38	26	34
Mumps	60	70	151	81	114	279	100	134	96
Paratyphoid Fever	—	1	—	1	—	—	—	—	—
Pneumonia (Broncho)	27	56	45	51	38	37	33	34	29
Pneumonia (Lobar)	62	41	49	59	53	39	36	34	41
Pollomyelitis	—	—	—	1	—	—	—	—	—
Scarlet Fever	70	95	121	116	116	71	92	81	65
Septic Sore Throat	3	1	1	6	3	5	2	2	3
Smallpox	—	—	—	—	1	—	—	—	—
Tetanus	1	—	—	—	—	—	—	1	—
Trichinosis	1	—	—	1	—	1	1	—	—
Tuberculosis (Pul)	35	30	15	19	29	25	25	20	22
Tuberculosis (O F)	2	2	1	1	3	2	2	—	2
Typhoid Fever	—	—	—	3	—	1	—	2	—
Undulant Fever	2	—	—	—	—	1	—	—	1
Whooping Cough	97	64	45	100	75	75	67	67	54
Gonorrhea	39	19	17	38	27	22	24	39	17
Syphilis	49	33	34	42	41	48	44	48	39

Remarks No cases of Asiatic cholera, glanders plague or yellow fever during the past seven years.

RÉSUMÉ OF COMMUNICABLE DISEASES IN MASSACHUSETTS FOR MARCH 1935

MONTHLY REPORT FOR MARCH, 1935

Disease	Mar., 1935	Mar., 1934	5 Yr Average*
Anterior Pollomyelitis	1	2	2
Chicken Pox	1148	1004	1110
Diphtheria	30	63	159
Dog Bite	716	498	406
Epidemic Cerebrospinal Meningitis	9	7	10

Based on the figures for the preceding five years.

German Measles	5113	67	240
Gonorrhea	513	487	515
Lobar Pneumonia	501	551	573
Measles	1574	9391	3935
Mumps	532	644	970
Scarlet Fever	1070	1708	1652
Syphilis	556	376	395
Tuberculosis Pulmonary	338	411	421
Tuberculosis Other Forms	40	43	45
Typhoid Fever	6	3	7
Undulant Fever	2	1	—
Whooping Cough	777	1959	1309

RARE DISEASES

Anterior poliomyelitis was reported from Worcester 1

Amebic dysentery was reported from Worcester, 2

Bacillary dysentery was reported from Boston, 2, Worcester, 2, total, 4

Encephalitis lethargica was reported from Lynn, 1, Springfield, 1 total, 2

Epidemic cerebrospinal meningitis was reported from Boston, 2 Duxbury, 1, Franklin, 1, Saugus, 1, Shrewsbury, 1, Taunton, 1, Uxbridge, 1, Worcester, 1, total, 9

Hookworm was reported from Foxboro, 1

Paratyphoid fever was reported from Everett, 1

Pellagra was reported from Chelsea, 1

Rabies was reported from Cambridge, 1

Septic sore throat was reported from Amherst, 2, Andover, 1, Boston, 1, Colrain, 1, Danvers, 2, Gardner, 1, Goshen, 1, Greenfield, 2, Lynn, 1, Malden, 1, Marlboro, 1, New Bedford, 1, Northfield, 5, Quincy, 1 Russell, 2, Shirley, 1, Stoneham, 1, Wal-tham, 12, Weston, 1, total, 38

Trachoma was reported from Brockton, 1, Haverhill, 1, Westwood, 1, total, 3

Trichinosis was reported from Boston, 3, New Bedford, 1, total, 4

Undulant fever was reported from Andover, 1, Somerville, 1, total, 2

Diphtheria morbidity maintained its progressive decline which began in 1924 after the introduction of immunization in 1923

Typhoid fever to date shows a slight decrease over the corresponding period for 1934

Epidemic cerebrospinal meningitis, while not remarkable in this State, shows an increase for New York, Ohio, Missouri and the District of Columbia

German measles is epidemic with the greatest number of cases ever reported for March

Measles, although below the five year average, is epidemic in Springfield, New Bedford, Boston, Hingham and Cohasset.

Pulmonary tuberculosis, scarlet fever, whooping cough and mumps were reported well below the five year average

The incidence of dog bites continues high with evidence of a focus in the vicinity of Lowell

Lobar pneumonia, chicken pox, anterior poliomyelitis and tuberculosis other forms are not remarkable

DINNER TO DR JOHN LOVETT MORSE

A dinner at the Brookline Country Club was given on April 22 by his former house officers and pupils to Dr John Lovett Morse, professor emeritus of Pediatrics in the Harvard Medical School, on the occasion of his seventieth birthday. A charcoal portrait of Dr Morse by Mr Dwight Shepler, was presented to him.

Dr Richard M Smith was toastmaster. Others present at the dinner were Lovett Morse (Dr Morse's son), W B Adams J M Baty E W Bar-

ron, K. D Blackfan, M T Briggs, G D Cutler, P W Emerson, R S Eustis, T Foster, E Friedman, J L Gamble, J I Grover, H Green, D M Hassmann, L W Hill, W W Howell, E Hubbard, M Ladd, W E Ladd, A T Legg, K. D Percy, D W Porter, W R Sisson, P H Sylvester, F B Talbot, B Crothers, A A Hornor, A R Cunningham, J H Young, S B Wolbach, E H Place

ANNOUNCEMENT OF THE FOURTH ANNUAL SALMON MEMORIAL AWARD FOR 1936 BY DR C CHARLES BURLINGAME

It gives me a great deal of pleasure tonight* in my capacity of Chairman of the Salmon Committee on Psychiatry and Mental Hygiene to announce that the Committee has selected the recipient of the Fourth Salmon Award for 1936, and in making this announcement, to reiterate the principles on which this Award is based.

It is made, as you know, to perpetuate the memory of our friend and colleague, Dr Thomas W Salmon, and the recipient is selected by the Committee solely on the basis of professional achievement in the field of psychiatry and mental hygiene.

Needless to say, the Committee feels a keen responsibility in making this selection each year, a responsibility which is magnified by the personal wish of each member to keep the Award on a level of distinction worthy of Doctor Salmon, for whom the Award is named. We believe the man selected for the coming year is worthy of the three who have received the Award.

The Salmon Committee on Psychiatry and Mental Hygiene has selected for the 1936 Salmon Memorial Award, Dr Samuel T Orton, of New York, former President of the American Psychiatric Association and the Association for Research in Nervous and Mental Diseases.

Doctor Orton has practiced his profession for thirty years and has specialized in psychiatry and neuropathology, with special attention to reading and writing difficulties, stuttering and other speech disorders. As a result of his researches along this line, methods of teaching these subjects have been drastically altered in the past fifteen years. His special studies of "left handedness" as a factor in various nervous disorders are generally accepted and applied by pedagogues to-day.

He has published numerous scientific papers on various medical subjects but more recently has concentrated his attention on a study of the causative factors in writing and language disabilities.

Doctor Orton is Professor of Neurology and Neuropathology at the College of Physicians and Surgeons, Columbia University, and Neuropathologist at the New York Neurological Institute. He was formerly Professor of Psychiatry and Director of the psychopathic hospital of the State University at Iowa. He served as Clinical Director of the department of nervous and mental diseases of Penn-

sylvania Hospital. He has held appointments at the Columbus (O) State Hospital Saint Ann Hospital Anaconda, Mont., and at Worcester (Mass.) State Hospital. He has served as a teacher at Harvard Medical School, Clark University Worcester Mass. He is a member of many scientific societies and was a member of the editorial board of the *Archives of Neurology and Psychiatry* for more than ten years.

May I say in conclusion that it gives me a good deal of personal pleasure to make this announcement and to say that as the recipient of this Award, Doctor Orton will next year deliver the Salmon Memorial Lectures

DR. REGINALD M. ATWATER APPOINTED EXECUTIVE SECRETARY

Reginald M. Atwater M.D., Dr.P.H., has been appointed Executive Secretary of the American Public Health Association. Dr Atwater for the past eight years has been Commissioner of Health in Cattaraugus County N. Y., which was the first of the counties in New York State to organize on a full time county unit basis for health.

Dr Atwater who is a native of Colorado is a graduate of Colorado College and of the Harvard Medical School where he received his M.D. degree in 1918. He became a Rockefeller Foundation Fellow in Public Health and was granted the degree of Dr.P.H. by Johns Hopkins in 1921. Going to the Orient Dr Atwater became Associate Professor of Hygiene in the Hunan-Yale College of Medicine in Changsha China from which post he returned to the United States in 1925 to teach in the Harvard School of Public Health.

Since 1927 Dr Atwater has occupied his present position in Cattaraugus County where he has been in charge during the period of transition from the health demonstration to the official department of health. During his administration several active research projects have been carried out in Cattaraugus County through the cooperation of the Milbank Memorial Fund, the U S Public Health Service and other agencies. Studies of tuberculosis prevention and control studies of rural water supplies of rural health administration and of general morbidity have been published from the Department.

The new Executive Secretary is a member of his county and the New York State Medical Societies a Fellow of the American Medical Association and a Fellow of the A.P.H.A. He is the author of several studies in epidemiology published in professional journals and he comes to the Association with a background of full academic training and practical experience in public health.

The American Public Health Association is the technical society of the professional public health workers of North America. Its Sixty Fourth Annual Meeting will be held in Milwaukee October 7-10

CALIFORNIA ENDORSES COMPULSORY "HEALTH INSURANCE"

The California Medical Association is the first important medical group in this country—and probably the first in the world—to offer full aid and cooperation in establishing a compulsory health insurance system according to Mary Ross staff expert on medical economics, writing in the May issue of *Survey Graphic Magazine* (New York) "Whatever this spring's legislative action at Sacramento the stand of the doctors marks economic and social tides which cannot long be held back says Miss Ross

Aside from the fact that California had a few years ago more physicians in proportion to population than any known area in the world, thus giving rise to competition among them Miss Ross believes that the states eighty years of experience with various forms of organized medical service have helped to point the issue. In this connection she cites the service maintained by the Southern Pacific Railroad Company for its employees at a set rate paid monthly by each worker

CERTAIN COMMENTS ON A COMMUNICATION RECEIVED FROM THE COMMITTEE ON PUBLIC HEALTH OF THE MASSACHUSETTS MEDICAL SOCIETY ENTITLED "HAZARDS OF PUBLICITY"

BY IAGO CALDESTON M.D.*

The Committee on Public Health of the Massachusetts Medical Society avows its recent communication, "The Hazards of Publicity to be discutient only. My dictionary defines discutient as serving to disperse morbid matter" I am loathe to believe that so honorable a body would commit a reprehensible act. Hence I interpret your meaning as discutient. And in this interpretation I presume to write you.

Perhaps you are aware that I have for years been interested in the subject of public health education or in medical publicity as you to my chagrin prefer to call it. The reprints which I am sending you will, I trust, bear witness to my having given some study and may I add thought, to this matter. Hence I may claim warrant for my partaking in this discussion, and may even command some earnest consideration of my propositions.

With the main hypothesis of your Committee's communication, nor I nor anyone can find fault. Truly there are hazards in publicity. Since you offer no conclusions save by indirection one cannot lit thereat. But, in the body of your communication there are a number of assertions expressed opinions and singular illustrations which deserve close scrutiny and evaluation. "The gesture you know may say more than the phrase."

To begin with your communication has the title of "The Hazards of Publicity" but in your very first sentence you modify your thesis, substituting

Executive Secretary Medical Information Bureau of the New York Academy of Medicine

therefor "public advertising" I know of no responsible individual or group of professional men who have urged the abandonment of that ancient and accepted ethical principle which forbids the individual physician to advertise himself to the public. I know of many who have favored, to use your expression, controlled publicity, to do away with personal advertising. I know of instances where their efforts were fruitful.

Then, I suppose by a sort of local pride, you credit Mrs. Eddy with having invented what you term corporation publicity. There is no historical warrant for this claim, and even if it could be established, it would not be pertinent. For again referring to your thesis, the concern is with "the hazards of publicity" and not with "corporate publicity", whatever this may mean.

Passing over a great deal of acutely discursive material on types of publicity, we come to "our own professional publicity men", whom you characterize as "honestly striving to carry the good word", but "fail to appreciate the complexity of what we know and the difficulties which surround our daily doings".

One is tempted to challenge the last qualification, for no one is in a better position to appreciate "complexity" than he who seeks to make it intelligible to the common mortal. But this is a tempting divergence which we must resist. More serious is the charge that follows, for it ascribes a defect 'for which there is no word in the English language (may the writer suggest—tautology—prolixity—redundancy) and which publicity men share with professors, lecturers and teachers'. This characteristic apparently consists in repetition, or restatement, for, by contrast Edward Jenner is singled out and it is affirmed that "the most remarkable thing about his greatness is "that he said once and for all practically everything that ever needs to be said about the prevention of smallpox". Immunologically, this is too sweeping and naïve a statement to be challenged for earnest ends. But its intended point deserves consideration. Jenner said his say and thereafter said no more! Well, then, what of it? He had nothing more to say and so he kept quiet. But what effect would his words have had were it not for the hundreds and thousands of enlightened professors, teachers and publicity men who took it upon themselves to "carry the good word"?

We have an instance in point in the case of Ignaz Philipp Semmelweis. Semmelweis demonstrated the contagiousness of puerperal fever. He said his say and repeated it many a time, and yet because he was without the help of "professors, teachers and publicity men", his words and his convictions did not prevail. Another scientist and a first class publicist in the best sense of the word wrote an essay on the contagiousness of puerperal fever. This was delivered before the Boston Society for Medical Improvement and at the request of the Society was printed in the *New England Quarterly Journal of Medicine and Surgery* for April, 1843. The history

of the bitter controversy that raged about the fact is public record. In this connection it may be noted that Oliver Wendell Holmes, who certainly cannot be charged with disregard for the best traditions of the medical profession, was not a writer on the advances of medicine and delivered talks concerning "the human body and its management" through the medium of a popular monthly. Indeed, among the publicists of the medical and scientific realms may be found the names of most illustrious.

There is in this issue a larger and more deeply rooted difference between men and their points than appears implied in the exposition of the hazards of publicity which has provoked this communication, and the issue reaches as far back into human history. Socrates was a publicist who, about the agora of Athens and sought in his fashion to educate *hoi polloi*. Plato, his illustrious pupil, abandoned the agora and created the Academy. Socrates had faith in the common man; Plato trusted only the philosophers. Socrates would talk with any man. Plato would not publish his works because the common man could not understand and might misunderstand. This opposition of the viewpoints of men is seen again in the struggle of the Reformation. The translated Bible is called the Vulgate. The true pioneers of publicity were the great intellects of the Renaissance, the poets, the philosophers, the expositors, the people who created the vernacular languages of Italy and France, who wrote learned works in English. Dante, Boccaccio, Rabelais, Montaigne, Francis Bacon—all these were publicists. The movement for "publishing" the cultural heritage of the human race attained its greatest intensity during the period of the great French humanists and encyclopedists. *Diderot* and *d'Alembert* are the two outstanding names. England had its counterpart of this movement, and the greatest of her scientists were above giving popular lectures within the very walls of its most noble and ancient institutions. *Humphry Davy*, *Darwin*, *Tyndall*, *Spencer*, *Huxley* are a few of those great Englishmen who believe in popularizing knowledge. To this very day the tradition of the best publicists is maintained among the English scientists. Sir Richard Gregor, B. F. R. S., Editor of *Nature*, recently delivered an illuminating exposition of one phase of this movement in an address entitled "Science and the Popular Press".

Unfortunately, not all popularizers are of the stature of Huxley, nor of the calibre of Tyndall, et al. A sort of mimicry hard for the untutored to recognize, a host of baneful writers have commanded the interest of the reading public, posing as popularizers, when indeed they are nothing more than crass vulgarizers. The distinction is not hard to appreciate. The popularizer brings out the inner interest of his subject so that his audience can better and more readily appreciate it. He is a commentator, an elucidator. The vulgarizer, like a

cook who uses a foreign sauce to impose flavor upon his mess so distorts so corrupts that interest is gained not because of the subject proper but by virtue of the bizarre presentation

What then? The problem must be understood and dealt with in a pragmatic fashion. Certain it is that our economic and social world has changed much since the beginning of the century. There is an immense reading public with an avid curiosity about all things medicine included. There is a highly organized industry journalism which serves this public curiosity and which thrives on opposition. We of the medical profession cannot cut ourselves loose from society to drift in our own little row boats. Even though we entertain a sentimental reverence for the "older accepted" ethics of medicine, which by the way are mainly wish fulfillment concepts, we must perforce face the current problems and meet them effectively. We meet them effectively when we cooperate with the press when we aid the Fourth Estate in every legitimate fashion possible. True some of the press's preoccupation with "upside down stomachs," cornea transplants etc. taxes our patience. But then, we must be philosophers. In time we are bound to gain and so too will the public. Indeed scrutiny of the press by a sympathetic eye will reveal that not infrequently the editorial page, feature articles and not seldom the news columns, too offer the reader sound advice and excellent information on personal health and communal welfare.

Yes there are hazards in publicity but there are also many gains for the courageous and the skilled who know or are willing to learn how to utilize it for the greater glory of medicine and the greater good of our people.

CORRESPONDENCE

OFFICIAL ACTIONS OF THE BOARD OF REGISTRATION IN MEDICINE

State House Boston
April 20 1935

Editor *New England Journal of Medicine*

This is to inform you that on April 11 1935 the Board of Registration in Medicine voted to reregister as a physician in this Commonwealth Dr James P. A. Nolan whose registration had been revoked by the Board on July 23 1933.

Yours very truly

STEPHEN RUSHMORE, M.D. Secretary

PRONUNCIATION OF MEDICAL WORDS

April 27 1935

Editor *New England Journal of Medicine*

Dr Haigh has a pretty good batting average. His pronunciations are backed up by the American Illustrated Medical Dictionary in every instance except *aberration urea* and *urethane*.

I wish he had included in his list *duodenal trauma pulmonary rugae hawstra caput apparatus terna cara* and many others which are never—well

hardly ever correctly pronounced by even the best doctors.

Incidentally I believe Webster is a better authority than Dorland. Best of all as a guide, however, is some knowledge of the English pronunciation of Latin now unhappily senescent and in desuetude.

Yours truly

ROBERT W. BUCK, M.D.

5 Bay State Road
Boston Mass

A GOOD LOCATION FOR A DOCTOR

Editor *New England Journal of Medicine*

There is an excellent opportunity for a young physician to locate and establish practice in a fine old town on the Daniel Webster Highway about ten miles from Concord N. H.

This town has a population of about 1400, comprising village and rural communities. It has several Auto Inns and plenty of auto accidents. It means much if a doctor can be summoned quickly rather than to wait for medical aid or ambulance from the city.

Three or four adjoining townships have no real dent physician. All of these are easily accessible over State Aid roads or Trunk Lines which are kept open and in splendid condition throughout the entire winter. Electricity and telephone are serviced into all these communities.

A fine old homestead with modern conveniences, centrally located may be procured—if desired—and the arrangement of the rooms makes it suitable for a home and offices.

For further particulars address

L. M. DADNEY

43 Salisbury Street,
Manchester N. H.

RECENT DEATHS

HALL — GARDNER WELLS HALL, M.D. aged fifty nine of 386 Marlborough Street, Boston Massachusetts, died at his home April 21 1935 after a long illness. Dr Hall was born in Boston the son of Charles Wells Hall and Lily Montague Hall. His premedical education was acquired at the Cutler School, Newton and Harvard College. His A.B. degree was conferred in 1897. He graduated from the Johns Hopkins School of Medicine in 1901.

He joined the Massachusetts Medical Society in 1911 was a Fellow of the American Medical Association and a member of the Boston Medical Library and the Harvard Club of Boston.

A widow Mrs Elizabeth Hancock (Page) Hall and two daughters Mrs Horace Partridge and Rosamond Wells Hall survive him.

KNIGHT — CHARLES LEWIS KNIGHT M.D., of 64 Stratford Street, West Roxbury and with an office at 544 Columbus Avenue Boston died suddenly in his office, April 18 1935. He was born at Deer Isle Maine in 1874. His premedical education was ac-

quired in the local schools and at the Bucksport, Maine, Seminary and he graduated from the Harvard Medical School in 1901. He was visiting physician to the Forest Hills Hospital.

He joined the Massachusetts Medical Society in 1902, and was also a Fellow of the American Medical Association. He was active in the South End Medical Center, and was a member of the Norfolk District Medical Society and the West Roxbury Medical Association.

He is survived by his widow, Mrs. Ellen Knight, and two sons, Dr. John E. Knight, an interne in the Boston City Hospital, and Charles L. Knight, Jr., a student at Harvard College.

OBITUARIES

FIELDING H. GARRISON, M.D.

With Dr. Garrison, who died in Baltimore, Md., April 19, 1935, American medicine loses one of its brightest ornaments. As editor of the Medical Catalogue of the Library of the Surgeon General's Office he rendered medical science invaluable services. His writings in the field of medical history are of the highest order and will have permanent value.

Fielding Hudson Garrison was born in Washington, D. C., November 5, 1870. After graduating from Central High School of his native city he attended Johns Hopkins University in Baltimore where he studied ancient and modern languages and higher mathematics. After graduating as *Artium Baccalaureus*, he returned to Washington and began the study of medicine at the University of Georgetown from which he graduated in 1893. Even during his studies Col. John S. Billings, who, a few years before, had founded the Library of the Surgeon General's Office, and who recognized the ability and knowledge of the young student, induced him to enter the Library as Assistant Librarian. For several years the three men, Billings, Fletcher and Garrison worked together on the first series of the great medical catalogue. When Billings retired in 1895 Dr. R. Fletcher and Dr. Garrison continued the work. At the same time they, together, published the *Index Medicus*, a monthly publication giving the latest medical literature of the world arranged by subjects. When Dr. Fletcher died in 1911 Dr. Garrison became Principal Assistant Librarian and under his direction the whole second series of the catalogue was published.

Dr. Garrison was a captain in the Medical Reserve Corps. When the United States entered the war in 1917, he was called to active duty. As Lieutenant Colonel he was sent to the Philippines where he served for several years. When he was recalled in 1922 he did office work in the Surgeon General's Office at Washington until his retirement from the army in 1930. In the same year he was appointed custodian of the W. H. Welch Library of the medical department of Johns Hopkins University at Baltimore.

Garrison possessed an extensive general education

He was well versed in the principal modern languages. He was a tireless reader and was familiar with the literature of the leading countries of Europe.

He was a brilliant and prolific writer. Besides numerous smaller articles on various medico-historical subjects he wrote a number of works of outstanding value. Among them should be mentioned

"Josiah Willard Gibbs and His Relation to Modern Science" (1909) and "Physiology and the Second Law of Thermodynamics" (1909). In these two large monographs Garrison demonstrated the great value of the work of Gibbs, the greatest mathematical physicist of this country, for modern science.

In 1915 he published "John Shaw Billings, a Memoir", in which he pointed out the great services which Billings, the founder of the Library of the Surgeon General's Office, rendered to medical science.

He wrote, furthermore, "History of Military Medicine" (1922), "History of Endocrine Doctrine" (1922) and "History of Pediatrics" (1923).

But his chief work is his "Introduction to the History of Medicine". This work is much more than its modest title would indicate, for it is a real and complete history of medicine. What gives the work such a high value is the careful and exact presentation of the great advances and discoveries in medical science during the last hundred years. In this respect it is the most complete and most reliable work that has so far appeared in the English language. The book was first published in 1913 and since then several new editions have appeared.

By his *History of Medicine* and his other valuable writings Dr. Garrison has secured for himself a prominent and permanent place in the field of medical historiography.

A. ALLEMANN, M.D.

3810-13th Street, N. W.,
Washington, D. C.

RESOLUTIONS ADOPTED BY THE SENIOR STAFF OF THE BOSTON CITY HOSPITAL IN APPRECIATION OF THOMAS JAMES O'BRIEN, M.D.

The Senior Staff of the Boston City Hospital wishes to record its great sense of loss in the passing of Dr. Thomas James O'Brien. Becoming a member of the Staff in 1914, Dr. O'Brien brought to the Hospital great ability as a practitioner, an unusual knowledge in the use of drugs, as well as an unusual command of parliamentary procedure and marked success as a speaker. During the doctor's later years of active service, his expert advice and of great assistance in the Administrative Board of the Staff.

His lovable personality made for him many friends among all sorts of people, they will remember him best for his modesty, his kindness, his loyalty and his thorough-going honesty, those who saw him during the last weeks of his illness can never forget his unflinching courage.

In the death of Dr O'Brien the Hospital has lost one of its most faithful supporters and those of us who loved him lose in his passing one of the truest of friends

P F BUTLER, M.D. *Secretary*

Senior Staff Boston City Hospital.

April 18 1935

NOTICES

WORCESTER NORTH CANCER CLINIC

ESTABLISHED 1927

Fitchburg Mass

May 9 1935

To the Physicians of Worcester North District Medical Society

A Special Cancer Consultation Clinic will be held at the Burbank Hospital, Fitchburg May 15 from 8 30 A.M. to 12 30 P.M., with Dr Joe Vincent Melg Surgeon to Collis P Huntington and Pondville Hospitals, as consultant. *Clinic of May 14 cancelled*

You are invited to accompany any of your patients whom you desire shall have this service, or to send them with a note and a report will be returned to you This service is gratis

Committee of the Worcester

North District Medical Society

WALTER F SAWYER, M.D.,

GEORGE MOSSMAN, M.D.,

CHARLES J LASERTE, M.D.,

ERSKINE R. PICKWICK M.D.

FREDERICK H THOMPSON M.D.

Chairman

AMERICAN-CANADIAN MEDICAL GOLFERS PLAY JUNE TENTH

International golf will be played at Atlantic City on June 10 when members of the American Medical Golfing Association and golf enthusiasts of the Canadian Medical Association join forces at the Northfield Country Club

The A. M. G. A.'s invitation to the Canadian Medical Association to hold a joint tournament this year has been accepted by Dr T C Routley General Secretary of the C. M. A. who replied "I am sure our Canadian colleagues will appreciate highly the honor you have done them in asking them to be present at the Twenty First Annual Tournament of the American Medical Golfing Association

TWO ADDITIONAL EVENTS

Two additional events will be added to the day's already generous program of nine events and seven prizes

1. The International Event, featuring the "Presidents Cup" a new trophy presented by Dr Charles Lukens of Toledo and nine other American prizes for our Canadian friends to carry back home.

2. The Canadian Event, featuring the Ontario Cup" or championship trophy and the other prizes of the Canadian Medical Association.

MANY FOURSOMES OF CANADIANS AND AMERICANS

Many American golfers having medical friends in Canada are arranging matches for the international medical golf tournament of June 10 It is expected that 200 players will tee off between 6 00 A.M. and 3 00 P.M. in this 36 hole and 18 hole competition The Atlantic City Committee has arranged that free busses will leave from Haddon Hall, from the Shelburne Hotel and from the Ambassador Hotel at 8 30 A.M. and will return from Northfield in the evening at 10 30 P.M. Dinner at 7 00 P.M. with Dr Frank A. Kelly of Detroit as toastmaster will be followed by distribution of trophies and prizes by Dr Walt P Conaway Chairman of the Atlantic City Golf Committee

For entry blank, write Bill Burns Executive Secretary 4421 Woodward Avenue, Detroit.

REPORTS AND NOTICES OF MEETINGS

MEDICAL CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

Doctor Christian gave one of his regular Thursday afternoon medical clinics at the Peter Bent Brigham Hospital on March 14 Lantern slides from Bright's original monograph on kidney disease in 1827 were shown. Bright also wrote on tumors and various other pathological conditions Doctor Christian stressed the keenness of these kidney drawings and went over several of them in detail giving the case history associated with each one A microscopic section from one of Bright's original cases (1827) was demonstrated, and proved to be in an excellent state of preservation.

The first case presented by Doctor Christian was a nineteen year old boy who had developed a simple head cold with a cough and had come to the hospital in the middle of February because of the cough At this time his urine showed a slight trace to a trace of albumin and rare hyaline casts with three to five red blood cells per high power field There was no history of renal symptoms but when he returned to the Outpatient Department on the twelfth of March the same condition existed in his urine and he was advised to enter the hospital until his kidney condition became normal Doctor Christian stressed the importance of realizing that acute nephritis may develop without symptoms and this must be remembered particularly in taking histories of patients with chronic nephritis

The second case was a seventeen year old boy who had had an attack of generalized edema at the age of three at which time he also had albumin in his urine After one year's treatment he had an attack of acute appendicitis and after recovering from the operation his urine picture was found to be normal There was no further trouble until July 1934 when intermittent puffiness of the face and legs was noticed. At this time he felt poorly had a poor appetite and his abdomen began to fill up On entry in December his blood pressure was one

hundred and twenty two over seventy and his urine showed hyaline and granular casts with considerable albumin. Anasarca existed. A phenolsulphonphthalein test showed fifty five per cent excretion in one hour. The plasma protein was three and six tenths grams per cent with relatively high globulin. At one time the cholesterol had reached sixteen hundred milligrams per cent. Before entry he complained of acute abdominal pain, and Doctor Christian pointed out that his past history of appendicitis at the age of four might have been due to a local swelling of the gut, since a mistaken diagnosis of appendicitis is often made in these patients. The problem in the treatment of this case is to build up the serum proteins and to do this a high protein intake is necessary. The lowered osmotic pressure of the blood due to the loss of protein in the urine allows the filtration pressure to be greater than the osmotic pressure for a sufficient proportion of the length of the capillary to allow more fluid to go into the tissues than comes out, thus, leading to edema and ascites. In this case a fair diuresis was obtained by the use of the mercurial diuretics, and gum acacia was used to raise the osmotic pressure, but it is hard to purify this material and prevent reactions. The loss of albumin continues and at present the total protein is 2.5 grams per cent, and the cholesterol is eight hundred milligrams per cent. The high cholesterol may be an attempt of the body to keep the excess fluid out of the tissues.

The third case was a fifty nine year old male who in 1922 entered for duodenal ulcer, and has returned frequently for the treatment of this condition. At the present time he entered because of his ulcer, dyspnea, and poor renal function. In 1922 his blood pressure was one hundred and seventy five over ninety and now it is two hundred and ten over ninety, and his heart is slightly enlarged. The blood urea nitrogen is fifty three milligrams per cent. Doctor Christian pointed out the difficulty of treating ulcer patients with kidney damage, because they are not able to take care of the excess base, and develop alkalosis. This patient had a carbon dioxide combining power of eighty seven volumes per cent on entry.

The fourth patient also had been treated for some time for an ulcer and since 1930 had shown albumin and red cells in his urine, and his blood pressure has slowly risen to one hundred and seventy five over one hundred and ten at present. He also had an alkalosis with a carbon dioxide combining power of seventy five volumes per cent.

The last case had a renal disturbance in 1927 in conjunction with pregnancy. On entry she had considerable nitrogen retention, but only a slight reduction in her red blood count. She entered with headache and dimness of vision. Gradually the blood urea nitrogen has increased from normal at entry to one hundred and twelve at present, and she demonstrated at the time of presentation a fibrinous pericarditis.

Doctor Christian classified nephritis into four

chief divisions: (1) acute nephritis, and as a division of this, subacute nephritis either with renal edema (nephrosis) or with hemorrhage, (2) chronic nephritis either with or without renal edema, (3) essential vascular hypertension, progressing into chronic nephritis, and (4) renal arteriosclerosis, progressing into chronic nephritis.

PLYMOUTH DISTRICT MEDICAL SOCIETY

At the annual meeting of the Plymouth District Medical Society on April 18, the following officers were elected for 1935-1936:

President William T. Hanson, M.D., Bridgewater, Mass.

Vice-President Charles Hammond, M.D., Hanover, Mass.

Secretary George A. Moore, M.D., Brockton, Mass.

Treasurer Alfred C. Smith, M.D., Brockton, Mass.

Councillors Thomas H. McCarthy, M.D., Nominating, Charles G. Miles, M.D., Alternate, William E. Curtin, M.D., Plymouth, Pelice H. Leavitt, M.D., Brockton, John J. McNamara, M.D., Brockton, Leon A. Alley, M.D., Lakeville, Alfred C. Smith, M.D., Brockton.

Censors John J. McNamara, M.D., Brockton, Leonard A. Baker, M.D., Middleboro, Richard B. Rand, M.D., North Abington, Arthur W. Carr, M.D., Bridgewater, David B. Tuholski, M.D., Brockton.

Orator, 1936 John J. Decker, M.D., Lakeville.
Librarian John H. Weller, M.D., Bridgewater.
Commissioner of Trials Fred F. Weiner, M.D., Brockton.

Nominating Committee Leonard A. Baker, M.D., William E. Curtin, M.D., Richard B. Rand, M.D.

THE NEW ENGLAND OPHTHALMOLOGICAL SOCIETY

The New England Ophthalmological Society met at the Massachusetts Eye and Ear Infirmary on the nineteenth of March. Dr. James J. Regan presided at the evening meeting. Dr. F. H. Verhoeff demonstrated a new needle holder which he has devised for eye work. The plan is that of a cone and plunger where the cone is pulled into the plunger by a spring and by this means holds the needle in place. It will fit any type of needle and grips it firmly. It is compact, easily manipulated, and promises to be of advantage in certain types of eye surgery and perhaps in other fields.

Dr. Charles Walker demonstrated a new type of perimeter which he has helped to devise. It is used in a dark room, and there are a series of rods at every thirty degrees with small lights which may be moved. A strong light with a red filter which keeps out light waves over six hundred and forty four vibrations or waves per second is used for fixation. This is visible to the macula only, as this wave length stimulates only the cones. Doctor Walker suggested that other filters might be devised for rod fixation.

Dr J H Waite presented the recent work that he has been doing in conjunction with the New England Deaconess Hospital on cataracts in diabetics. In the past it has been reported that as many as one quarter of all hospital diabetics have cataracts. In the German school in 1853 it was thought that posterior cortical cataracts were caused by diabetes but the French thought the typical diabetic cataract to be of a soft bilateral, rapidly maturing type. Studies carried out in the first quarter of the present century with the ophthalmoscope showed no distinctive differences between diabetic cataracts and those occurring in other patients. In the present series twenty five hundred cases were studied with the slit lamp.

A high instance of transitory refractive changes was found mostly present in the age group between thirty and sixty years. Doctor Waite pointed out that five per cent of all of Doctor Joslin's out-of-state patients came to him because their sight was falling and for this reason the diabetic statistics for cataracts are somewhat misleading. In spite of this no significant difference between the incidence of diabetic and non-diabetic cataracts of any type could be found except that flocculi were found in four per cent of juvenile diabetics. Doctor Waite concluded that it is doubtful if adult diabetic cataracts really exist.

Miss Hazel Hunt presented the chemical data collected in this study. After a brief description of the difficulties encountered in the chemical examination which was carried on by the late Doctor Carey she showed charts demonstrating the comparison of the chemical constituents of diabetic and non-diabetic cataracts removed at operation. Studies of the cholesterol, calcium, and phosphorus were done and the only striking difference between the diabetic and non-diabetic cataracts was in the phosphorus content which was definitely shown to be markedly lower in the diabetic cataracts. The normal calcium to phosphorus ratio is 6 in non-diabetics this was 1.8 and in diabetics it was 16.5.

In the discussion which followed Doctor Waite said that transitory refractive changes may also occur in alkalosis, jaundice, starvation and other conditions.

Dr Priscilla White spoke briefly of certain interesting cases of diabetic dwarfs who strongly resemble pituitary dwarfs and said that it is in these juvenile patients that the flocculent type of cataract is apt to occur. Doctor Waite said that the infiltration of the eye tissues especially the epithelium of the iris and ciliary body with glycogen may be said to be typical of diabetes and diabetic retinæ are much more prone to hemorrhage than the non-diabetic.

HARVARD MEDICAL SOCIETY

A meeting of the Harvard Medical Society was held on the twelfth of March at the Peter Bent Brigham Hospital. Dr W C Quinby presided and Doctor Hyder presented the case of the evening.

This was a twenty two year old man who entered with a mass in his left inguinal region of fourteen months duration. He had lost thirty pounds in weight, had become weak and noticed that his right breast had become larger than the left, although there was no tenderness or discharge. His local doctor had removed five hundred cubic centimeters of a rusty fluid from the inguinal mass. Two weeks previous to entry he had felt a mass in the left part of his abdomen and also one in the left supraclavicular region. He had become hoarse about this time but had never had any genito-urinary symptoms. He stated that he had always had only one testicle.

Physical examination disclosed an emaciated man who appeared slightly anemic, and who had a mass about three centimeters in diameter in the supraclavicular region which was firm and fixed to the deep structures but not tender. There was a hard nodular fixed mass in the left upper quadrant and left lower quadrant. In the left inguinal region there was a hard nodular fixed mass in which there was fluctuation. The left testicle could not be palpated and the right testicle was about one-half normal size. The right breast was larger than the left. The white count was fifteen thousand and the urine negative. The Bitterling test gave a positive reaction in six hours. X-ray examination showed extensive metastases throughout the lung and in the mediastinum. A diagnosis of testicular neoplasm associated with gynecomastia was made. Biopsy of the supraclavicular node showed a rapidly growing adenocarcinoma. Doctor Quinby discussed the case and pointed out that testicular neoplasms are very rapidly growing and often occur just after puberty. Some are very amenable to x-ray treatment, and the prognosis in these cases is favorable unless there are extensive metastases. There are cases reported in the literature which have been entirely cured by x-ray treatment. The tumor is apparently of embryological origin. The patient's urine gives a positive Aschheim Zondek test. The most recent modification of this test uses the Bitterling fish and it has been proved to be as accurate as the Friedmann modification. It is very easily and quickly carried out by simply adding four cubic centimeters of urine to the fish tank containing approximately one liter of water. A positive reaction is shown by an increase of the ovipositor of the fish to four or five times its normal length. If by this test the amount of hormone in the urine decreases with radiation the case has a better prognosis than if a decrease is not shown. The test also may be used to demonstrate the development of metastases.

Dr Richard U Light, Yale University School of Medicine gave an interesting account of his trip around the world by aeroplane showing lantern slides of photographs taken during his trip. Doctor Light accompanied by Mr Robert Wilson flew via Greenland to Europe and thence via Arabia and India to the South Sea Islands. They crossed the Pacific by boat, flew down the West Coast to Cen

tral Mexico and back up the East Coast to the starting point. His own account of his trip is to be published in detail in the July issue of the *Geographical Review*, the official publication, of the American Geographical Society. A short account of his cruise appeared in the *Yale Alumni Weekly*, March 22, 1935.

BRISTOL NORTH DISTRICT MEDICAL SOCIETY

There will be a special meeting of the Bristol North District Medical Society at the Sturdy Hospital, Attleboro, Mass., on Wednesday, May 15, at 8 P.M. Speakers from the Committee on Public Relations will discuss Medical Economics.

C B KINGSBURY, M.D., *Secretary*

AMERICAN PROCTOLOGIC SOCIETY

Atlantic City, Monday and Tuesday, June 10 and 11
Headquarters Marlborough Blenheim

Arrangements Homer I. Silvers, Atlantic City

The American Proctologic Society, organized in 1899 for the purpose of "Investigating and disseminating knowledge relating to the rectum, anus and colon", is a society with a definitely limited membership, divided into Fellows, Associates, Honorary Fellows and Honorary Associates.

Regular and orthodox practitioners, members of the American Medical Association, and not affiliated with medical groups, admitting those not members of the A. M. A., are hereby cordially invited to attend the Thirty-Sixth Annual Meeting in Atlantic City, Monday and Tuesday, June 10 and 11—the week of the A. M. A. meeting.

Physicians fulfilling the above requirements who are especially interested in Proctology are eligible to submit applications for Associate Membership after attending at least one meeting of the Society and one meeting of the American Medical Association Section.

For preliminary program and additional information, address the Secretary,

FRANK G. RUNYON, M.D.

1361 Perkiomen Avenue,
Reading, Pa.

THE MEDICAL LIBRARY ASSOCIATION

The Thirty-Seventh Annual Meeting of the Medical Library Association will be held in Rochester, New York, June 17 to 19, 1935. Sessions will be held at the Rochester Academy of Medicine and the University of Rochester Medical School.

The program includes addresses, round table discussions and demonstrations on library procedure, medical history and medical literature.

The Association is being represented by two delegates at the Congress of the International Federation of Library Associations to be held at Madrid, May 19 to 30. These delegates will return in time to report upon the Congress at this meeting.

This Association consists of about 175 of the medical libraries of this country and Canada, together

with their librarians and a group of supporting members of physicians interested in the advancement of medical libraries.

The officers of the Association are as follows:

Charles Frankenberger, President, Brooklyn, N. Y.

Louise Ophüls, Vice President, San Francisco, Cal.

Frances N. A. Whitman, Secretary, Boston, Mass.

Mary Louise Marshall, Treasurer, New Orleans, La.

Marjorie J. Darrach, Chairman of Executive Committee, Detroit, Mich.

All interested in the development of medical libraries are invited to attend.

MASSACHUSETTS GENERAL HOSPITAL

CLINICAL MEETING—THURSDAY, MAY 16, 1935—MOSELEY MEMORIAL BUILDING—8 15 10 P.M.

PROGRAM

Chronic Constrictive Pericarditis (Pick's Disease)

1. Diagnosis P. D. White, M.D.

2. Surgical Treatment E. D. Churchill, M.D.

3. Presentation of Cases

Physicians, medical students, nurses and social workers are cordially invited.

COMMITTEE ON HOSPITAL MEETINGS,

ARTHUR W. ALLEN, *Chairman*,

WILLIAM B. BREED, *Secretary*

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY

ANNUAL MEETING

The Annual Meeting of the Society will be held at the Hotel Continental, Cambridge, on Wednesday, May 15, 1935.

The program is as follows:

11 30 A.M. Business Meeting Election of Officers

12 noon Luncheon

1 P.M. Oration "Behind the Scenes of an Abdominal Scar"

Speaker Nicholas A. Gallagher, M.D., F.A.C.S.

Guest tickets for the luncheon may be obtained at \$1.00 each from Dr. Edward Mellus. Members in good standing, as usual, are invited to the luncheon.

ALLEN H. BLAKE, M.D., *President*,

ALEXANDER A. LEVI, M.D., *Secretary*

THE NORFOLK DISTRICT MEDICAL SOCIETY

ANNUAL MEETING

The eighty-fifth annual meeting of the Norfolk District Medical Society for the election of officers, and incidental business, will be held May 7, 1935, at 6 o'clock at the Hotel Kenmore, Boston.

Dinner is scheduled for 7 o'clock. Following the dinner there will be a concert by the Boston Symphonic Ensemble.

The members are invited to have ladies accompany them. Dinner tickets for members will be \$1.50 and for their guests \$2.50

CADIS PHIPPS *President*

FRANK S. CHUCKSHANK M.D. *Secretary*

1286 Beacon Street,
Brookline Mass

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY MAY 6 1935

Monday May 6—

2 P.M. Conference on Occupational Diseases Hotel Statler Boston

14 P.M. Clinic—Medical Surgical and Orthopedic Services Children's Hospital and Infants Hospital (amphitheatre)

Tuesday May 7—

12 30 4 P.M. Ward Visit Massachusetts Eye and Ear Infirmary

14 5 P.M. Seminar, Pediatric Laboratory Massachusetts General Hospital.

6 P.M. Norfolk District Medical Society annual meeting Hotel Kenmore Boston

Thursday May 9—

12 M. Clinico-Pathological Conference Massachusetts General Hospital.

112 M. Clinico Pathological Conference. Children's Hospital.

Friday May 10—

112 M. Clinical Meeting of Children's Medical Staff Massachusetts General Hospital. Ether Dome

*12 1 P.M. Boston University School of Medicine Surgical Clinic at the Boston City Hospital, Ch. ver Amphitheatre

Saturday May 11—

10 12 Staff rounds at the Peter Bent Brigham Hospital. Open to practicing physicians.

*Open to the medical profession.

†Open to Fellows of the Massachusetts Medical Society

May 6 7—Conference on Occupational Diseases, 2 P.M. Hotel Statler Boston.

May 10—Boston University School of Medicine Surgical Clinic at the Boston City Hospital 12 1 Cheever Amphitheatre

May 16—Massachusetts General Hospital Clinical Meeting See page 860

June 10—American Canadian Medical Golfers Play See page 857

June 10 and 11—American Proctologic Society See page 860

June 11—American Heart Association. The Eleventh Scientific Session will be held from 9 30 A.M. to 5 30 P.M. at the Hotel Claridge Atlantic City N.J. The program will be devoted to various subjects on cardiovascular disease. Gertrude P. Wood, Office Secretary 80 West 50th Street, New York, N.Y.

June 15—American Neisserian Society will meet at the Hotel Claridge Atlantic City New Jersey

June 12 and 13—Academy of Physical Medicine Annual Meeting, will be held at the Claridge Hotel, Atlantic City N.J. For further details address Arthur H. Ring M.D. Secretary Treasurer Arlington, Mass.

June 17 18—The Medical Library Association See page 860

June 17 to 21—Convention of the Catholic Hospital Association will be held at Creighton University Omaha, Nebraska. For information address the Most Reverend Joseph Francis Rummel, D.D., Bishop of Omaha.

June 24-25—American Urological Association and Western Branch Society American Urological Association will meet at the Palace Hotel, San Francisco California. For details write Dr. Charles P. Mathis 480 Sutter Street, San Francisco California.

June 27 28 Inc.—British National Association for the Prevention of Tuberculosis will be held at Southport, England. Persons desiring further information should write to Miss F. Stickland, Secretary of the Association at Tavistock House North Tavistock Square, London W.C.1 England.

July 1 23—University of Freiburg 1 Br will hold a vacation course of the medical faculty. For information address Akademische Auslandsstelle der Universität Freiburg i. Br. Schwimmbadstrasse 8 Germany

July 22 27—Seventh International Congress on Industrial Accidents and Diseases Brussels, Belgium. The American Committee of the Congress is under the chairmanship of Dr. Fred H. Albee New York for the Section on Accidents, and that of Dr. Emory R. Hayhurst, Columbus, Ohio, for Industrial Diseases. The American delegation to the Congress will sail from New York on July 8 and will visit London Amsterdam The Hague and Paris and optionally Budapest. Physicians interested in the Congress or in the medical tour in conjunction with it, may address the Secretary Dr. Richard Kovacs 1100 Park Avenue, New York City

October 7 10—American Public Health Association will meet in Milwaukee, Wisconsin. For information address the American Public Health Association 60 West 50th Street, New York City

DISTRICT MEDICAL SOCIETIES

BRISTOL NORTH DISTRICT MEDICAL SOCIETY

May 15—See page 860

ESSEX NORTH DISTRICT MEDICAL SOCIETY

May 15—Annual Meeting will be held at the Anna Jaques Hospital Newburyport.

ESSEX SOUTH DISTRICT MEDICAL SOCIETY

May 8—Annual Meeting. Salem Country Club, Peabody Dinner at 6 P.M. sharp (Note change in time)

FRANKLIN DISTRICT MEDICAL SOCIETY

May 14—Annual Meeting will be held at the Welton Greenfield, at 11 A.M.

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

May 8—Annual Meeting will be held at the Winchester Country Club Winchester at 1 P.M.

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY

May 15—Annual Meeting See page 860

NORFOLK DISTRICT MEDICAL SOCIETY

May 7—Annual Meeting See page 860

WORCESTER DISTRICT MEDICAL SOCIETY

May 8—Annual Meeting will be held during the afternoon and evening at the Worcester Country Club

WORCESTER NORTH DISTRICT MEDICAL SOCIETY

May 15—See page 867

BOOKS RECEIVED FOR REVIEW

What You Should Know about Heart Disease
Harold E. B. Pardee Second Edition 127 pp
Philadelphia Lea & Febiger \$1.50

Martini's Principles and Practice of Physical Diagnosis Edited by Robert F. Loeb From the author's fixed translation by George J. Farber 213 pp
Philadelphia, Montreal and London J. B. Lippincott Company

The Nervous Patient. A frontier of internal medicine. Charles P. Emerson 453 pp Philadelphia, London and Montreal J. B. Lippincott Company \$4.00

The Glasgow Royal Maternity and Women's Hospital Medical Report for the Year 1933 Prepared by D. McK. Hart, Registrar to the Hospital 184 pp Glasgow Aird & Coghlin Ltd

International Clinica. A quarterly of illustrated clinical lectures and especially prepared original articles. Edited by Louis Hamman Volume 1 forty fifth series 1935 310 pp Philadelphia, Montreal and London J. B. Lippincott Company

Clinical and Pathological Applications of Spectrum Analysis Walther Gerlach and Werner Gerlach 143 pp London Adam Hilger Limited

Blood Groups and Blood Transfusion Alexander S Wiener 220 pp Springfield and Baltimore Charles C Thomas \$4 00

British Health Resorts Spa Seaside Inland 1935 Edited for the association by R Fortescue Fox 263 pp London J & A Churchill, Ltd One shilling net.

Diseases of the Skin Richard L Sutton and Richard L Sutton, Jr Ninth Edition 1433 pp St. Louis The C V Mosby Company \$12 50

Physiology in Modern Medicine J J R. Macleod, and others Seventh Edition. 1154 pp St Louis The C V Mosby Company \$8 50

Methods of Treatment. Logan Clendening Fifth Edition 879 pp St Louis The C V Mosby Company \$10 00

Physical Diagnosis Warren P Elmer and W D Rose Seventh Edition 919 pp St Louis The C V Mosby Company \$8 00

BOOK REVIEWS

Traité Élémentaire D'Exploration Clinique Médicale (Technique et Séméiologie) Par Émile Sergent et al 1176 pp Paris Masson et Cie Broche 120 fr, Cartonne toile 145 fr

The book is excellently written and one can readily see that a tremendous effort has been put forth to make it complete in every detail. The reviewer recalls the former edition of this work under the title "Technique Clinique et Séméiologie Élémentaire" written some years ago. It was a very popular book among students and physicians. This enlarged edition has many collaborators, each a recognized authority in his respective field.

Each system is studied in respect to symptoms, signs, and clinical and differential diagnosis. The laboratory tests pertinent to each system are up to date and detailed.

Physical diagnosis, urine analysis, hepatic function, clinical bacteriology, and pneumothorax are but a few of the subjects discussed in a comprehensive and practical way. The work is well illustrated and contains 1176 pages. It is well worth possessing.

The Patient and the Weather William F Petersen and Margaret E Milliken Volume II Autonomic Dysintegration 530 pp Michigan Edwards Brothers, Inc \$6 50

The second volume of a series of books on "The Patient and the Weather" concerns the topic of autonomic dysintegration. The authors have extended the work already introduced in their previous volumes to diseases and syndromes such as focal infections, headache, epilepsy, eclampsia, mucous colitis and gastric ulcer, the neuroses, urticaria, asthma, arthritis, glaucoma, alopecia areata, and conditions involving the ears and teeth. These observations, according to the introduction were made

"on the individual who is unusually responsive to the environment, in whom clinical reflections become apparent because the chemical and endocrine tides that are set up are unusual in amplitude or because tissue foci exist which cannot adequately accommodate to even the normal swings of the metabolic rhythm." Based on a theory of vascular spasm, which reflects the conditions of the weather, an attempt is made to evaluate disease conditions on this basis. Many data are recorded with numerous diagrams, charts and occasionally photographs. References are given to the literature. Much of the material presented is of interest to physicians. The book is marred, however, by lack of clearness of expression, a feature also present in the previous volume. The work is in such a stage of experimentation and uncertainty that the conclusions cannot be considered of value to practitioners at the present time.

The Crippled and the Disabled Rehabilitation of the physically handicapped in the United States. Henry H Kessler 337 pp New York Columbia University Press \$4 00

Mr Kessler presents in a direct orderly manner a thorough study of the various phases of this major economic problem and, as medical director of the New Jersey Rehabilitation Commission, makes throughout the work practical recommendations for the improvement of legislative measures. The first part of the study is of general character and deals chiefly with the social attitude toward the disabled. The author in concluding this part states, "Two great social barriers to the rehabilitation of the disabled lie in psychosocial and economic prejudice."

It is the purpose of this study to describe how society is gradually reducing its restrictions through legislation designed to eliminate the differential between the normal and the disabled."

The subsequent parts of the study deal with the child cripple, the industrial disabled, the war-disabled, the chronically disabled, the blind, the deaf and the deaf mutes. The exhaustive character of the work is indicated by the several appendices which are epitomes of compensation provisions for second major injuries in those states not having second injury funds (nine pages), summary of vocational rehabilitation legislation by states (thirteen pages), listing of statutes for the education of the blind by states (eight pages), a bibliography of over 200 references to general literature and to official and semi-official publications of this and foreign countries (eighteen pages). A ten-page double-column index enhances the value of the work as a reference book.

This volume is highly recommended to physicians and lawyers interested in industrial medicine, to social economists and legislators, to hospital social service departments, to industrial accident boards, to personnel officers of industrial plants, and to the intellectual who are themselves physically disabled.

The Columbia University Press is to be congratulated upon the typography and other physical features of the volume.

The New England Journal of Medicine

VOLUME 212

MAY 9 1935

NUMBER 19

CANCER OF THE STOMACH

An Analysis of 195 Cases With End Results

BY FRANK H. LAHEY, M.D.,* NEIL W. SWINTON, M.D.* AND MATTHEW PEELEN, M.D.*

CANCER of the stomach has been reported to be the cause of 18 per cent of the deaths due to malignancy in the United States. Since Billroth first removed the pylorus successfully in a case of cancer of the stomach, more than fifty years ago there has been considerable pessimism concerning the outlook in this group of cases. However, during the past few years there has been reported an increasing number of five and ten year cures in this field and we feel very strongly that this percentage of cures can and will be materially increased. The two factors which have been responsible for the prevailing pessimism are the high mortality which has followed radical removal of these lesions and the poor end results as relates to recurrences. If we are to combat these two factors successfully we must continue to make careful analyses of large groups of cases and to make every conceivable effort to learn all that we can from these studies.

During the past seven years at the Lahey Clinic we have seen one hundred and ninety-five cases of cancer of the stomach. In an attempt to better our diagnostic ability, to reduce the operative mortality and to improve the end results in cancer of the stomach we have studied this group of cases in detail.

The most important single factor in reaching this goal is the making of an early diagnosis and the bringing of these patients to operation earlier than has been the case in the past. Unfortunately there is in carcinoma of the stomach no typical early history, which in itself is sufficient to bring these patients to operation early in this disease. When patients present the classical picture of gastric malignancy as has been so often described, with marked weight loss, emaciation, cachexia and vomiting the disease is usually inoperable and even though the lesion in the stomach is technically removable the operative mortality is at that time too high. The diagnosis must be made earlier and the operative percentage higher if we are to improve our end results.

There are two important reasons why malignant lesions in this part of the gastrointestinal

tract do not cause more characteristic early symptoms. In cancer of the colon and rectum there are obvious mechanical reasons why patients so often seek early relief. Obstruction here fortunately produces early symptoms. Patients with peptic ulcer have impressive chemical changes, a high gastric acid with resulting pylorospasm is frequently associated with this condition and this is sufficient to cause them to consult their physician early in the disease. In cancer of the stomach however there are too often neither chemical nor mechanical changes to cause the patient to seek early relief. A high gastric acidity with pylorospasm is uncommon with cancer of the stomach. Vomiting and other evidences of obstruction except in fairly late lesions near the pylorus or in the cardia are not common early symptoms in cancer of the stomach. By reviewing this group of cases, however, there are certain features brought out which we feel are important and will aid in making an earlier diagnosis.

The age incidence of this series of cases is shown in table 1.

TABLE 1
AGE INCIDENCE

Years	Number
21-30	1 (26 years)
31-40	10
41-50	35
51-60	76
61-70	54
71-80	18
81-90	1 (82 years)

Of particular interest are the eleven cases under forty years of age, one of whom was only twenty-six. People with indigestion between the ages of thirty and forty and even between the ages of twenty and thirty are never free from the suspicion of gastric malignancy.

The sex incidence is shown in table 2.

TABLE 2
SEX INCIDENCE

Males	62%
Females	38%

This predominance in males has been repeatedly shown by other observers.

Lahey, Frank H.—Director of Surgery, The Lahey Clinic, Boston.
Swinton, Neil W.—Surgical Fellow, Lahey Clinic, Boston.
Peelen, Matthew—Fellow in Surgery, Lahey Clinic, Boston.
For records and addresses of authors see "This Week's Issue," page 224.

In reviewing the symptomatology of this group of cases, we have attempted to tabulate the earliest symptoms of which the patient was aware, and on this basis, the early symptoms are shown in table 3

TABLE 3

EARLY SYMPTOMATOLOGY

Indigestion	70%
Anorexia	40%
Pain	30%
Weight loss	25%
Vomiting	28%
Dysphagia	4%
Weakness	13%
Hemorrhage	4%
Constipation	7%
Diarrhea	7%
Mass	15%

Nearly every patient in this entire group had indigestion in some form or anorexia or both, early in the disease. Although only 25 per cent of this group complained of weight loss as an early symptom, we were surprised to find that, in one hundred and sixty-one patients, in whom the weight was given, there was an average weight loss of 25.7 pounds

TABLE 4

WEIGHT LOSS (0.60 POUNDS)

Not given	32 cases
25.7 pounds	163 cases (average)

There is a large group of patients who for years suffer from mild indigestion, gas and occasional gastric distress who eventually consult their physicians for these symptoms and are found on careful study to have an advanced gastric malignancy. There is another small group whose symptoms more closely simulate those of ulcer. They have distress, gas, belching and often burning coming on regularly after meals and being relieved at first by food and soda. In both of these groups of cases, however, at some point in the history, there has been some change in their symptoms. Those with the ulcer-like history find that food and soda no longer afford relief. Those with symptoms suggestive of those associated with an irritable or unstable colon on close questioning will admit that there has been a definite change in these symptoms at some certain point. Their indigestion has become worse, or their cathartics no longer afford relief of symptoms. This is the important factor to be elicited in the taking of these histories. Too often, we have found in going over our cases that this point has not been appreciated by the physician who was caring for these people at that time, and it is not until vomiting, or large amounts of weight loss, or other symptoms of advanced stages of the disease were noted that more complete investigations were made.

Although there may not be any particularly characteristic symptom or group of symptoms of the early stages of this disease, we feel that if a careful study is made in all patients who note a change in their gastric consciousness, there will be an increasing number of early diagnoses of cancer of the stomach made.

Great care must be taken in the eliciting of histories in these cases. In several of our patients who on routine gastric studies were later found to have gastric malignancy, a diagnosis of cancer of the stomach was not suspected, because careful histories had not been taken. Gas, indigestion, sour stomach, belching, distress, fullness, burning, constipation, diarrhea, the character of the stools, distaste for food and weight loss are symptoms which must be gone into in careful detail and any changes in these symptoms must be brought out.

The duration of symptoms in our patients who at operation presented an operable lesion was 81 months. In the inoperable group, it was 85 months. We do not feel from these figures that the duration of symptoms has a dependable relationship to operability. Patients who have had symptoms for many months may still have a removable lesion.

Again, the presence of a palpable tumor is no definite contraindication to operation. Twenty-eight per cent of our patients having an operable lesion were found on examination to have a palpable mass. In the inoperable group, 45 per cent had a palpable tumor. It has been pointed out in the literature that large gastric tumors are sometimes of the fungating local type and often easily removable carrying with them a relatively good prognosis. On the other hand, the infiltrating type of gastric carcinoma is often more serious because of metastases or direct extensions and very frequently not palpable even in the late stages of the disease.

Although one's attention may be directed to the stomach by the points which we have mentioned in the history, the diagnosis of cancer of the stomach is not definitely established until further studies have been made. The two procedures of the greatest value are the roentgenologic examination of the stomach and studies of the gastric contents.

Fluoroscopic examination of the stomach has been highly accurate in our hands and the results of the x-ray diagnoses in this group of cases are shown in table 5.

TABLE 5

X RAY DIAGNOSES

Cancer of the Stomach	167 cases or 92%
No report	13 cases
Inconclusive (suspected)	8 cases or 4%
Error in Diagnosis	7 cases or 4%

The cases recorded as suspected of being carcinoma were operated upon within a short time.

of the original examination. For several years our Gastroenterological Department has followed a plan of putting all patients with suspicious but doubtful gastric lesions to bed in the hospital for a two to three weeks' period and closely following them fluoroscopically. If at the end of this time, all symptoms have been relieved by a strict medical régime, if the stools are free of occult blood, and if the defect has disappeared by x ray, we have considered the lesion benign, but if any of these criteria are not completely fulfilled, subtotal gastrectomy is performed as the lesion then must be either a carcinoma or an intractable ulcer and in either event radical gastric surgery is indicated.

In the seven cases where the diagnosis of cancer of the stomach was not made, but later found by operation or autopsy to be a fact several interesting points were brought out. These cases all had complete gastrointestinal x ray studies, gastric analyses and the other routine laboratory work. It is in this group that gastric analyses are of help. As will be seen from the figures in table 6 only two patients in our entire group of one hundred and ninety five cases had a hyperchlorhydria, and over two-thirds of the patients of the group had no free hydrochloric acid.

TABLE 6

THE PRESENCE OF FREE HYDROCHLORIC ACID
FOLLOWING AN EWALD'S TEST MEAL

Not given	79 cases
0	77 cases or 68%
Below 20 cc	25 cases or 23%
20-40 "	9 cases or 7%
Over 40 "	2 cases or 2%

Although a review by gastroenterologists of the patients seen routinely who have an achlorhydria will show only a small percentage to have cancer of the stomach, yet this is the group in which diagnostic errors are usually made. Three of our patients in this group were operated upon for gall stones and although at operation gall bladder pathology was found cancer of the stomach was also encountered and demonstrated. Gall bladder pathology may complicate and confuse gastric fluoroscopy. When patients are operated upon for gall bladder disease, upon opening the abdomen the stomach and the duodenum should always be carefully explored, particularly in the presence of an achlorhydria. All three of these patients in our series had been reported as having no free hydrochloric acid following a test meal. Three other patients in whom the x ray diagnosis was not made showed a prepyloric lesion. Two of these had a low free hydrochloric acid content and one an achlorhydria. One patient presented a greater curvature lesion with a low acid and one patient a lesser curvature lesion with a high acid. We now know and have previously and repeatedly reported that in our ex-

perience all lesions of the greater curvature of the stomach are malignant and should have immediate surgery. Cancers of the stomach occur next in frequency in the prepyloric area and it

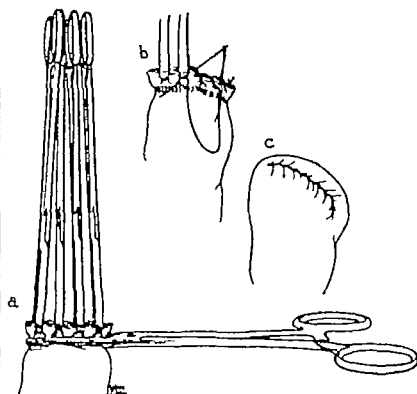


FIG 1

The management of the duodenal stump in reaction of the stomach is extremely important. Leakage due to improper or unsafe closure of the duodenal stump accounts for a definite portion of the mortality of subtotal gastrectomy.

The free portion of the duodenum available for inversion is often very short and difficult to turn in. Dissection of the adjacent duodenum from the head of the pancreas is likewise often a trying and bloody procedure. It is, therefore, important to save as much of the duodenum as possible for this procedure. The plan of duodenal closure which preserves the greatest amount of duodenal stump for inversion is that of securing the duodenum with no clamp whatever on it. This of necessity results in some spillage of duodenal contents and a certain amount of soiling. This is a very useful and at times necessary procedure in patients with low duodenal ulcers submitted to gastric resection since by no other method can enough duodenum be kept available for inversion. In patients with ulcer however the gastric acid is high the gastric content relatively free from contaminating organisms and the danger of infection is slight. In cancer of the stomach the above situation is not true, and in fact, the reverse is true—the stomach frequently being filled with sloughing material, and we have hesitated to employ this method in our resection for cancer. The plan which we have utilized to crush the duodenal stump and still preserve it for inversion is illustrated in Figure 1. After the duodenum has been freed for an adequate distance from the pylorus an Ochsner clamp is applied at a sufficient distance from the duodenum to permit severing that structure with the cautery between the clamp and the pylorus leaving approximately one fourth of an inch of duodenum in the jaws of the clamp.

FIG 1-a.

This projecting end of cauterized duodenum is then caught in Allis tacking forceps and the Ochsner clamp released. The crushed end of the duodenum is then sutured over and over each tacking forceps being taken off as the suture groups that part of the duodenum held by that forceps.

FIG 1-b.

The closed end of duodenum is then further inverted by continuous or interrupted sutures of silk or catgut as one desires. This plan provides plenty of duodenum and permits closure without contamination.

is in this area where errors must be so carefully guarded against. The one patient where the acid was high and the diagnosis not made was perhaps excusable. We believe that even this patient would not have escaped diagnosis if he had consented to a period of hospital observation on a strict dietary régime with repeated gastric fluoroscopies as recommended.

To obtain a real increase in the number of early diagnoses of cancer of the stomach, there

must be a considerable increase in the number of gastric x-rays and gastric analyses done. These patients in the early stages of cancer are not ordinarily seen in large numbers in the

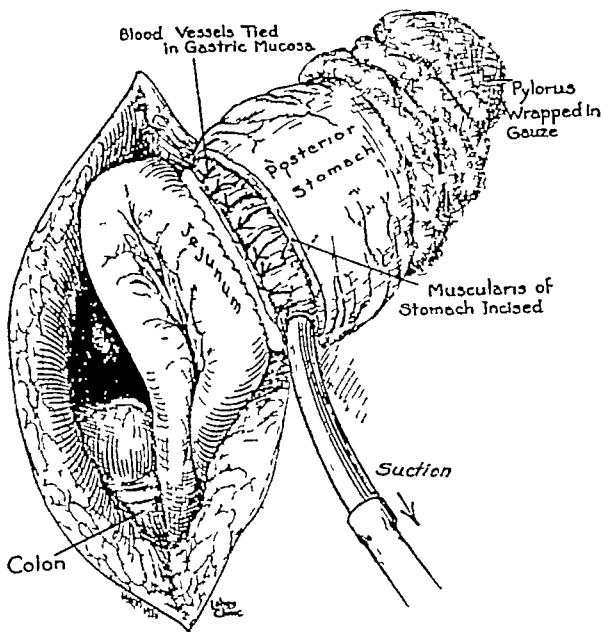


FIG 2

In order that we should in no way be limited in the height and so the radicalism of our gastric resections we have employed the Reichel-Polka method of retrocolic or anticolonic anastomosis as is more convenient in each case in all of our gastric resections. We have not employed clamps in any of our resections or gastric anastomoses as we have felt that not only can the anastomosis be done more easily without clamps but also that clamps tend to limit the amount of stomach which can be removed in resection. In figure 2 one sees the stomach severed from the duodenum and freed of its attachments to the gastrohepatic and gastrocolic omentum. The clamped pyloric end is wrapped in a gauze pad to avoid contamination and the stomach is drawn out upon the left abdominal wall for the anastomosis. The jejunum has been sutured to the posterior wall of the stomach as the first layer of the anastomosis and the serosa and muscularis of the posterior wall are shown incised down to the gastric mucosa. Practically all of the gastric vessels of any size are located in the gastric mucosa beneath the muscularis. By the plan here illustrated employed by Harberer and nearly all surgeons dealing with these operations in any numbers these vessels can be demonstrated surrounded by a suture as shown in figure 3 and all bleeding from the gastric stump accurately controlled. When the mucosa of the stomach is exposed on the front and back as shown in figures 2 and 3 and the vessels in the mucosa all ligated there is practically no oozing from the cut ends of the stomach during the anastomosis of that structure to the jejunum and one does not depend upon the anastomotic stitch alone to control hemorrhage. So accurate is the control of blood supply by this plan that when the stomach is opened for completion of the anastomosis the definite line of demarcation between the vascularized and avascularized area can be plainly seen in the mucosa on the anterior wall of the stomach before it is cut away.

We feel that accurate ligation of all the vessels in the gastric stump is necessary. Previous to the time when we employed this plan and in a patient in whom complete ligation of all the vessels in the mucosa was not done we have had a patient die from a postoperative bleeding point between the stitches in the cut end of the stomach. This was proved by autopsy to be a single vessel in the gastric edge between two stitches.

In figure 2 after the jejunum has been sutured to the posterior wall of the stomach the muscularis cut and all of the vessels in the mucosa ligated an opening in the mucosa is made at the greater curvature and a suction tube inserted to remove the gastric contents from both the proximal and distal portions of the stomach. With the stomach completely emptied of fluid contents the dangers of peritoneal soiling are greatly lessened.

larger hospitals and clinics where complete gastrointestinal studies are routinely carried out. They are seen by the general practitioner in their homes and in his office. He hesitates to refer every patient whom he sees with gastro-

intestinal complaints for a complete gastrointestinal study because of the necessary cost involved. Yet, if following his close observation, symptoms in these patients are not promptly relieved, complete studies should be made, if we are ever going to improve the results in this field.

Details of the operative technique of subtotal gastrectomy as we employ it are well illustrated by the line drawings 1, 2, 3, 4, and described in the legends.

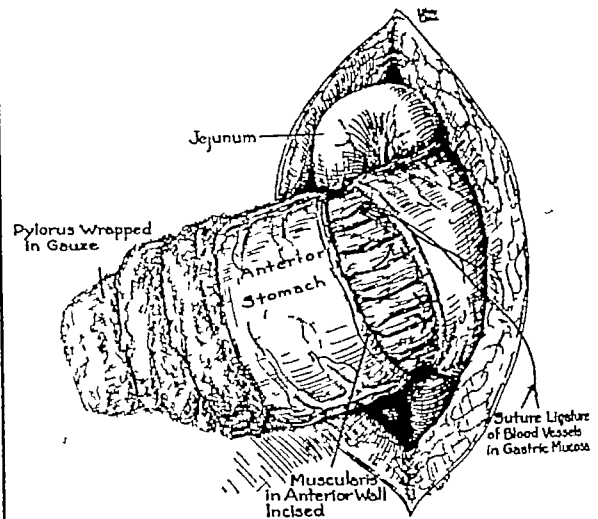


FIG 3

In this picture the stomach is shown pulled to the right to expose the anterior gastric wall. As shown in figure 2 the jejunum has been sutured to the posterior wall of the stomach by the first row of seromuscular stitches. The muscularis has been incised and all of the vessels in the mucosa suture ligated. With the stomach now turned to the right the muscularis on the anterior wall is incised down to the mucosa completing thus the severing of the stomach except for its mucosal attachment. The vessels are shown being suture ligated in the mucosa and the proximal stump of stomach is now ready to be severed from the distal portion of the stomach containing the carcinoma and the second row of mucosa muscularis and serosa stitches anastomosing the jejunum to the stomach are now inserted. The original serosal suture is carried around the anterior wall of the stomach and the anastomosis is now completed as shown in figure 4.

We have given up the use of spinal anesthesia for extensive and long upper abdominal operations reserving it only for good risk patients where the operation is expected to take one hour or less to complete. Intratracheal ethylene or cyclopropane anesthesia with regional field block with metycain has been most satisfactory in our hands and is unreservedly our anesthesia of choice for gastric resections. There is less shock produced with it and there is not the ever-present, perhaps unconscious fear that the anesthesia will only last a certain length of time as the result of which the operation is hurried and the operator is worried. This type of anesthesia has definitely decreased our operative mortality in the last two years and is a distinct advance in the management of these serious cases.

Distant metastases most commonly found in the supraclavicular nodes particularly on the left (Virchow's node) and in the pouch of Douglas should be searched for before operation is

undertaken. The presence of such metastases ordinarily contraindicates resection, yet if the lesion is otherwise operable and the patient's condition warrants, in certain selected cases life may definitely be prolonged and made more comfortable by radical resection even in the presence of metastases. The presence of metastases in the liver ordinarily contraindicates resection, yet, we have seen a patient who at the time of the original operation had a small discrete nodule in the liver, have two years of com

usually be in the limits plastica or leather bottle type of gastric carcinoma. We have performed this procedure seven times in recent years with four operative deaths. Although this is a high operative mortality, we have had one patient enjoy three and a half years of active, satisfactory life following this procedure and we believe with increasing experience, this mortality can be materially reduced.

The immediate operative mortality in subtotal removals of the stomach has also been too high,

TABLE 7

OPERABILITY OF CANCER OF STOMACH

Operable		Mortality
Complete Gastrectomy	3.6%	57%
Subtotal Gastrectomy	22.1%	34%
Total	25.7%	38%
Inoperable		
No operation	36.9%	
Explorations only	17.4%	6%
Palliative procedures	12.8%	40%
Refused operation or operated elsewhere	7.3%	

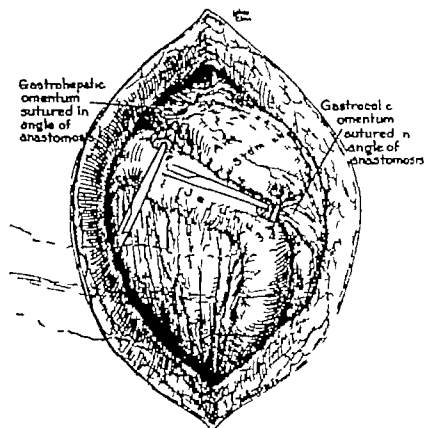


FIG. 4

The end to side anastomosis of the jejunum and stomach has been completed. The ligated stube of gastrohepatic and gastrectal omentum are shown being sutured into the upper and lower angles of the jejuno-gastric anastomosis to reinforce the suture line at this angle and to serve as suspensory supports to the anastomosis lessening thus the danger of the jejunal and gastric edges separating at these points.

fortable active life following a radical gastric resection. The lack of fixation in a lesion is a better index of operability than its size. Here again one must remember that attachments of these lesions are frequently inflammatory in nature and successful resections can often be done even though the situation at first appears hopeless.

One of the mistakes which we have made and most regretted has been to start a resection for gastric cancer only to find as the resection progressed that the lesion was not actually removable. Too great pains cannot be exercised after the abdomen is opened in settling the question of operability.

The operability and immediate operative mortality in this group of cases are shown in table 7.

In good risk patients, preferably in the younger age group where the lesion even though extensive is limited to the stomach, we feel that total gastrectomy and anastomosis of the esophagus to the jejunum are often justifiable. This will

and as long as the operability is as low as it is, 22 per cent, it will not be possible to get the mortality rate satisfactorily lower. Low operability rates will always be associated with high mortality and low curability rates. Our operability mortality and curability rates in cancer of the rectum and colon for example, present convincing evidence of this fact. In these conditions our operability rate is now 70 per cent, our mortality rate 9 per cent and of all the cases having had a radical procedure, 46 per cent are alive and well over five years with out recurrence of the malignancy. Not until we greatly increase our operability figures in gastric cancer will we decrease our mortality and increase our curability figures. The mortality figures in gastric cancer must however probably always be high to give patients in this group of serious cases the best chance.

Palliative operations in our hands have been far from satisfactory. As will be seen in the table there has been a high operative mortality associated with operation at this stage and the patients have not experienced sufficient relief from palliative gastroenterostomy to make the operation really worth while to them. When a growth in the stomach has reached a point where removal is not possible and a palliative gastroenterostomy is performed it will soon encroach on the gastroenterostomy and vomiting will, frequently, soon recur.

Of the patients surviving operation who have subsequently died the average duration of life has been between twenty two and twenty three months. Those cases later dying who at the time of operation showed metastases in the regional glands have lived about fifteen months

and in those cases where the growth was limited to the stomach the average duration of life has been about twenty-five months. However, of this group of fifty gastric resections for cancer there are eleven cases still alive. Of these, two have gone seven years and one four years. They are in perfect health without evidence of recurrence at the present time. Another is alive and well three and a half years following operation. One has gone two and a half years, three have gone eighteen months, three one year and one five months following operation. In this latter group, there are four that have recurrences at the present time.*

TABLE 8

DURATION OF LIFE FOLLOWING RADICAL OPERATION

Total Gastrectomy (3) 4 years, 2½ years, 1½ years

Subtotal Gastrectomy

Of those dead, average duration of life 24 months (1½ to 4½ years)

11 Cases still living

2 cases	7 years
1 case	4 years
1 "	3½ years
1 "	2½ years
3 cases	18 months
3 "	1 year
	five months

Palliative Operations 5 6 months

Explorations only 5 4 months

Inoperable and Unexplored 7 1 months

As will also be seen in table 8 the duration of life in those patients where palliative types of operation were done, was only slightly over five months, and in those cases where an exploratory procedure alone was done, the duration of life was approximately the same. This indicates that these palliative procedures do not sufficiently increase the duration of life in these cases to justify their being done in most cases.

*In the group operated previous to nineteen twenty seven one man is still alive and well twelve years after radical resection of the stomach for carcinoma.

CONCLUSION AND SUMMARY

A series of one hundred and ninety-five cases of cancer of the stomach seen at the Lahey Clinic between the years nineteen twenty seven and nineteen thirty-four is presented. The age and sex incidence are given. The early symptomatology is presented showing that all these patients had indigestion or loss of appetite, or both early in the disease. The point is emphasized that although there is no characteristic early symptomatology of cancer of the stomach, there is nearly always some change in the patient's gastric consciousness. If the diagnosis of cancer of the stomach is to be made earlier in the disease, there must be an impressive increase in the number of gastric fluoroscopies and gastric analyses done in those patients whose attention is directed to their gastrointestinal tract. X-ray examinations of the stomach in this series of cases have been extremely accurate, 95 per cent. The presence of a hyperchlorhydria in this disease is rare and a great majority have low or no acid. Greater curvature lesions are always malignant. Prepyloric lesions associated with a low acid or in the presence of an achlorhydria must be viewed with great suspicion as to possible malignancy. The operability and immediate postoperative mortality in this series of cases are presented. Line drawings of the operative procedures which we have employed in total and subtotal gastrectomy are submitted. Complete gastrectomy in good risk patients where the lesion is limited to the stomach usually with the linitis plastica type of lesion is a frequently justifiable procedure. The end results following complete and subtotal removals of the stomach are given. Palliative operations for malignancies of the stomach are in general not satisfactory. In our hands it has not increased the duration of life and has been attended with a high operative mortality. Exploration of gastric malignancies alone has not been attended with a high operative mortality and is frequently indicated before the question of operability can be settled in patients with gastric malignancy.

A STUDY OF HEART DISEASE AMONG VETERANS*

I Clinical Classification of Five Hundred Cases

BY PHILIP B. MATZ, M.D.†

THIS study of heart disease in veterans is based upon a clinical investigation of five hundred ex-service patients who had been treated in the hospitals of the Veterans' Administration. The purpose of the study was to classify the

heart disabilities in accordance with the diagnostic criteria of the American Heart Association, and to ascertain the principal etiological factors as well as anatomic and abnormal physiological findings, so that proper preventive and therapeutic measures might be formulated in the handling of veterans with heart disease.

In the conduct of the study, valuable assistance was rendered by the medical officers who treated the patients and who subsequently fur-

*From the Research Subdivision, Medical and Hospital Service, Veterans Administration.

†Matz, Philip B.—Chief, Research Subdivision, Medical and Hospital Service, Veterans Administration, Washington, D. C. For record and address of author see "This Week's Issue" page 594.

nished the desired data on a special history form issued by the Medical and Hospital Service.

The patients were classified according to the etiological types of heart disease, anatomic findings, abnormal physiology, and functional capacity. The anatomic as well as the abnormal physiological findings were correlated with the etiological types of heart disease.

The group of veterans consisted of 497 males and three females. Three hundred and ninety-two or 78.4 per cent of the total number were white patients and 108 or 21.6 per cent were colored patients.

Four hundred and eight or 81.6 per cent of the group were World War veterans, sixty-five or 13 per cent were veterans of the Spanish American War, twenty-one or 4.2 per cent were veterans of the Civil War, and six or 1.2 per cent were either veterans of other wars or peace time soldiers.

The range of ages of the patients of the group was from 15 to 83 years. The average age at the time of the inception of heart disease was 34.8 years. Eighty-one per cent of the patients were World War veterans with an average age of forty-two years.

In the conduct of this study it was found that forty-four or 8.8 per cent of the 500 cases gave evidence of potential heart disease that is the cases showed the presence of cardiac symptoms and certain etiological factors without demonstrable anatomic evidence of heart disease.

INCIDENCE OF ETIOLOGICAL TYPES OF HEART DISEASE

Recent studies of heart disease have shown that the etiological types vary considerably according to geographic location, race, economic and social status, etc. Observers have shown that the incidence of rheumatic heart disease in New England is greater than it is in the South. It has also been shown that the white race is more susceptible to rheumatic heart disease than is the colored race. On the other hand the colored race is more susceptible to hypertensive, arteriosclerotic, and syphilitic heart disease than is the white race. In a group of white and colored patients studied by Wood, Jones, and Kimbrough¹ it was noted that hypertension and syphilis accounted for about 75 per cent of heart disease in the colored patients and about 45 per cent in the white patients. Various observers have noted that angina pectoris was found less commonly among Negroes than among white patients in spite of the higher incidence of syphilis, arteriosclerosis and hypertension in colored patients. The increased incidence of hypertensive and syphilitic heart disease in Negro cardiac patients has also been commented on recently by Schwab and Schulze², as well as by Laws³.

The reduced incidence of rheumatic heart

disease in the colored race has been referred to by various observers. For instance Wood, Jones, and Kimbrough¹ found that in their group of cardiac patients but 11.6 per cent of rheumatic heart disease was found among Negro patients as compared with 28 per cent in white patients. Laws³ in a study of 645 cases of organic heart disease found that the rheumatic type of heart disability was present to an extent of 15.2 per cent in white patients as compared with an incidence of 4.3 per cent in colored patients.

The relationship of climate to the inception of heart disease has also been discussed by many writers. For instance Wood, Jones, and Kimbrough¹ found that rheumatic heart disease was almost twice as common in Massachusetts as in Virginia. The high incidence of the rheumatic type of heart disease in New England is confirmed by the findings of Cabot (46 per cent), Hamilton and Hallisey (58 per cent) and by White and Jones (39.5 per cent). Gager and Dunn⁴ in a study of 1200 cases of heart disease in Washington, D. C. found that but 7.2 per cent of the group were of rheumatic etiology. Wickoff and Lingg⁵ in a study of 1001 cases of organic heart disease in and around New York City found that about one-fourth of the group were of rheumatic etiology.

In addition to the factors just mentioned the classification of heart disease is also influenced by the manner in which the criteria for diagnosis are applied. In spite of the teaching of the American Heart Association there is still a diversity of opinion on the subject so that different observers have established criteria of their own or have not properly applied the criteria of the American Heart Association. In addition some clinicians have introduced terms of classification different from those recommended by the American Heart Association with the result that there is a considerable variation of the incidence of the etiological types of heart disease.

Schwab and Schulze² have tabulated the incidence of the various etiological types of heart disease as reported by a number of writers. This showed that the incidence of rheumatic heart disease varied from 3.4 per cent to as high as 44 per cent, arteriosclerotic heart disease varied from 13.7 per cent to 32.4 per cent, hypertensive heart disease varied from 14.9 per cent to 57.2 per cent, syphilitic heart disease varied from 1.1 per cent to 19.3 per cent, the thyroid type of heart disease varied from 1.3 per cent to 9.8 per cent.

Table 1 classifies the 500 cases of heart disease according to etiology. It will be noted that the largest group is arteriosclerotic heart disease, twenty-four per cent of the patients gave evidence of this form of heart disability. Rheumatic heart disease was present to the extent of 23.8 per cent. Thirteen per cent of the group were cases of heart disability due to infectious

diseases Eleven and eight-tenths per cent of the group were cases of syphilitic heart disease Four and six-tenths per cent of the patients were cases of hypertensive heart disease Two and two-tenths per cent were cases of heart disability due to some systemic disease One and six-tenths per cent were cases of cardiac neurosis One and four-tenths per cent were heart disabilities due to disease of the thyroid Six-tenths per cent were due to bacterial infections One case gave evidence of congenital heart disease In 25 or 5 per cent of instances the causative factor was unknown and it was not possible definitely to classify the heart disability by etiology

Eight and eight-tenths per cent of the cases gave evidence of potential heart disease, that is,

a physiological diagnosis This conforms with the diagnostic criteria of the American Heart Association

The outstanding facts in the study of the etiology of heart disease in the group of 500 veterans indicate that rheumatic heart disease is more prevalent in the white veterans, while arteriosclerotic, hypertensive, and syphilitic heart disease are more prevalent in the colored veterans

RHEUMATIC HEART DISEASE

In the study of rheumatic heart disease an attempt was made to ascertain the type of rheumatic infection which played an etiological rôle in the development of the cardiac disability For this purpose 119 cases of heart disease were

TABLE 1
CLASSIFICATION OF HEART DISEASE BY
ETIOLOGICAL FACTORS

	Total		White		Colored	
	Num- ber	Per Cent	Num- ber	Per Cent	Num ber	Per Cent
Rheumatic	119	23.8	111	28.3	8	7.4
Syphilitic	59	11.8	34	8.7	25	23.1
Bacterial infection	3	0.6	3	0.8		
Heart disease, sequel of infectious disease	65	13.0	56	14.3	9	8.3
Thyroid	7	1.4	7	1.8		
Cardiac neurosis	8	1.6	6	1.5	2	1.9
Arteriosclerotic	120	24.0	86	21.9	34	31.5
Hypertensive	23	4.6	14	3.6	9	8.3
General systemic disease	11	2.2	11	2.8		
Congenital developmental defect	1	0.2	1	0.2		
Unknown etiology	25	5.0	18	4.6	7	6.5
Potential heart disease	44	8.8	32	8.2	12	11.1
Possible heart disease	15	3.0	13	3.3	2	1.9
Total	500	100.0	392	100.0	108	100.0

they conformed to the criteria for the diagnosis of potential heart disease as described by the American Heart Association These patients gave no evidence of organic heart disease at the time of the examination, but they had symptoms and signs referable to the heart, and showed the presence of some etiological factor such as hypertension, acute rheumatic fever, etc., which eventually may lead to anatomic heart disease Fifteen or 3 per cent of the cases were classified as possible heart disease, these patients showed abnormal signs or symptoms referable to the heart, but a definite diagnosis of heart disease could not be made

In the consideration of hypertensive and arteriosclerotic heart disease, one is impressed with the fact that many cardiologists group these two types together However, in this study it was decided to consider these two types of cases separately, with the understanding that the diagnosis of hypertensive heart disease would be restricted to cases without demonstrable arteriosclerosis If the latter were present the cases were classified as arteriosclerotic heart disease and the hypertension was then considered

selected The group gave evidence of 153 rheumatic etiological factors Of this number it was found that in sixty-seven instances or 56.3 per cent, tonsillitis was the rheumatic factor, in forty-three instances or 36.1 per cent rheumatic fever was the causative factor, in thirty-one instances or 26.1 per cent arthritis was the factor causing rheumatic heart disease, in seven instances or 5.9 per cent pharyngitis was the factor, and in five instances or 4.2 per cent tooth and gum infections constituted the rheumatic etiological factor of heart disease

HEART DISEASE, SEQUEL OF INFECTIOUS DISEASES

Infectious diseases other than rheumatic fever, syphilis, and acute and subacute bacterial infections may cause heart disease A study was made of sixty-five cases of heart disease which were considered to be due to infectious diseases More than one type of infectious disease may have contributed to the inception of the heart disability, as a matter of fact in the case of the sixty-five cardiac patients referred to in this group there was a history of the presence of 100 infectious diseases, the most fre-

quent of which were influenza, pneumonia, and measles.

HEART DISABILITY DUE TO GENERAL SYSTEMIC DISEASES

Eleven patients of the group gave evidence of heart disease which was considered the result of general systemic diseases. In six instances the etiological disease was nephritis, in three instances emphysema, and in two instances obesity was the causative factor

THYROID HEART DISEASE

Seven patients of the group gave evidence of heart disease which was considered to be due to abnormal thyroid activity, in five instances the cause was hyperthyroidism, and in two instances hypothyroidism

INCIDENCE OF ANATOMIC TYPES OF HEART DISEASE

While the most frequent classification of heart disease is by etiological types, it was decided in

TABLE 2
CORRELATION OF ETIOLOGIC TYPES OF HEART DISEASE WITH ANATOMIC FINDINGS

Anatomic Type of Heart Disease	Total Lesions	Per Cent	Rheumatic	Syphilitic	Bacterial Infection	Sequel of infectious disease	Thyroid	Arteriosclerotic	Hypertensive	General systemic disease	Congenital	Unknown etiology
Enlargement of heart	139	32.1	28	21	8	22	1	40	9	7		8
Hypertrophy of heart	107	24.7	30	17		12	1	38	6	2		3
Dilatation of heart	4	0.9		2				2				
Ventricular preponderance												
(a) Right	25	5.8	11	4		8		8	1	2		1
(b) Left	109	25.2	22	16	2	13	1	41	8	1		5
Auricular hypertrophy	14	3.2	7	3		2		2				
Cardiac thrombosis	4	0.9		1		1		1		1		
Cardiac infarction	2	0.5	1	1								
Myocarditis												
(a) Acute	1	0.2			1							
(b) Chronic	194	44.8	47	15	2	29	2	69	10	8		12
Fibrosis of myocardium	27	6.2		3		2		19	1			
Myocardial infiltration												
(a) Fatty	8	1.8	1	1		2		2		2		
(b) Parenchymatous	8	1.8	2	2			1	2		1		
Fatty degeneration	2	0.5		1				1				
Endocarditis												
(a) Acute	2	0.5		1	1							
(b) Chronic	25	5.8	12	4		4	1	2			1	1
(c) Subacute	1	0.2			1							
Cardiac valvular disease												
(a) Aortic insufficiency	71	16.4	6	45	1	7		5	1	1	1	3
(b) Aortic stenosis	12	2.8	5	1	1	3				1	1	
(c) Mitral insufficiency	118	27.3	38	20	3	18	1	25	4	1	1	7
(d) Mitral stenosis	72	16.6	44	6	8	11	1	5				2
(e) Pulmonic insufficiency	2	0.5		1						1		
(f) Pulmonic stenosis												
(g) Tricuspid insufficiency	1	0.2		1								
(h) Tricuspid stenosis	1	0.2					1					
Congenital abnormality	1	0.2									1	
Pericarditis acute												
(a) Serofibrinous	1	0.2	1									
(b) Purulent	1	0.2										1
Hydropericardium	1	0.2				1						
Adherent pericardium	4	0.9				2				1		1
Aortitis												
(a) Without dilatation	16	3.7		13				1				2
(b) With dilatation	28	6.5		28								
Aneurysm	6	1.4		5								
Thrombosis	1	0.2										1
Arteriosclerosis	168	38.8	18	15		7	2	1.0	4	2		
Total number of lesions	1176		276	278	13	139	12	377	44	31	5	47
Total cases	433		119	59	3	65	7	120	23	11	1	25
Average number of lesions	2.7		2.3	3.9	6.0	2.1	1.7	3.1	1.9	2.8	5.0	1.0

addition to group the cases by anatomic findings. A correlation was made in the case of 433 of the total group of 500 cardiac patients, the data of which may be seen in table 2.

A study of this table discloses the fact that the 433 cardiac patients classified by etiological types gave evidence of 1176 anatomic lesions or

noted in the order of frequency were chronic myocarditis, mitral stenosis, mitral insufficiency, cardiac hypertrophy, and cardiac enlargement.

In fifty-nine cases of syphilitic heart disease, the most common anatomic lesions in the order of frequency were aortic insufficiency, aortitis with dilatation, cardiac enlargement, mitral in-

TABLE 3
ABNORMAL PHYSIOLOGY CORRELATED WITH ETIOLOGIC TYPES OF HEART DISEASE

Abnormal Physiology	Total Lesions	Per Cent	Rheumatic	Syphilitic	Bacterial Infection	Sequel of infectious disease	Thyroid	Cardiac neurosis	Arterio sclerotic	Hypertensive	General systemic disease	Congenital	Unknown etiology
Regular sinus rhythm	151	34.2	44	28	1	17	1	5	32	9	3		11
Ectopic rhythms	2	0.5				1							1
Vagal arrhythmia	3	0.7		1					2				
(a) Sinus arrhythmia	11	2.5	6					1	2	1			1
Sinus tachycardia	58	13.2	16	4	1	12	1	4	15	2	1		2
Premature contractions													
(a) Auricular	10	2.3	4			2			3		1		
(b) Junctional	3	0.7	1						1		1		
(c) Ventricular	18	4.1	9						7	1			1
(d) Unknown	6	1.4		1		1			4				
Paroxysmal tachycardia													
(a) Auricular	3	0.7				2			1				
(b) Ventricular	1	0.2								1			
(c) Unknown	7	1.6				2	2		1	1	1		
Auricular flutter													
(a) Paroxysmal	3	0.7	1			1			1				
(b) Chronic	2	0.5	2										
Auricular fibrillation													
(a) Paroxysmal	9	2.0	3		1				4		1		
(b) Chronic	24	5.4	9	2	1	5	1		4				2
Ventricular fibrillation	1	0.2		1									
Auriculoventricular heart block													
(a) Partial block	21	4.8	6	3		2	1		9				
Intraventricular block													
(a) Partial	3	0.7	1						2				
(b) Bundle branch	13	2.9	2	2		4			3	1	1		
Valvular incompetency													
(a) Mitral incompetency	102	23.1	30	19	2	15			23	3	3	1	6
(b) Tricuspid incompetency	1	0.2		1									
(c) Pulmonic incompetency	3	0.7		2							1		
(d) Aortic incompetency	54	12.2	3	31	1	7			6	1	1	1	3
Hypertension	169	38.3	29	20		18	1	2	73	23	3		
Hypotension	24	5.4	9	1	1	3			9				1
Congestive heart failure	36	8.2	5	9		7			9		4		2
Effort syndrome	17	3.9	1	6		2		3	4			1	
Anginal syndrome	25	5.7	6	4		3			8		1	1	2
Total abnormal physiological findings	780		187	135	8	104	7	15	223	43	22	4	32
Total cases	441		119	59	3	65	7	8	120	23	11	1	25
Average number of abnormal physiological findings	1.8		1.6	2.3	2.7	1.6	1.0	1.9	1.9	1.9	2.0	4.0	1.3

an average of 2.7 lesions per patient. The most common lesions in the order of frequency were chronic myocarditis, arteriosclerosis, cardiac enlargement, mitral insufficiency, cardiac hypertrophy, mitral stenosis, and aortic insufficiency.

In the consideration of 119 cases of rheumatic heart disease the most common anatomic lesions

insufficiency, cardiac hypertrophy, arteriosclerosis, chronic myocarditis, and aortitis without dilatation.

In sixty-five cases of heart disease the sequel of infectious diseases, the most common anatomic lesions in the order of frequency were chronic myocarditis, enlargement of the heart, mitral

insufficiency, cardiac hypertrophy, and mitral stenosis.

In 120 cases of arteriosclerotic heart disease, the most common anatomic lesions in the order of frequency were arteriosclerosis, chronic myocarditis, enlargement of the heart, cardiac hypertrophy, mitral insufficiency, and fibrosis of the myocardium.

In twenty three cases of hypertensive heart disease the most common anatomic lesions in the order of frequency were chronic myocarditis, enlargement of the heart, and cardiac hypertrophy.

The most common anatomic lesions in the other etiological types of heart disease may be seen by referring to the table

57 per cent gave evidence of anginal syndrome. The incidence of the other physiological abnormalities may be noted by referring to the table in question.

FUNCTIONAL CAPACITY IN CARDIOVASCULAR DISEASE

A study was made to determine the functional capacity of the group of patients affected with various etiological types of heart disease. For this purpose the classification of the American Heart Association was used in the case of 421 of the cardiac patients. The data in table 4 indicate that of the total number 221 per cent were able to carry on their habitual physical activity, 32.8 per cent of the group were able

TABLE 4
FUNCTIONAL CAPACITY IN HEART DISEASE

Etiologic Type of Heart Disease	Total cases	Ordinary activity		Slightly limited Activity		Greatly limited Activity		Bed patient	
		Num	Per	Num	Per	Num	Per	Num	Per
		ber	Cent	ber	Cent	ber	Cent	ber	Cent
Rheumatic	111	21	18.9	41	37.0	40	36.0	9	8.1
Syphilitic	44	3	6.8	12	27.3	25	56.8	4	9.1
Sequel of infectious disease	63	8	12.7	26	41.3	23	36.5	6	9.5
Thyroid	6	1	16.7	3	50.0	1	16.7	1	16.6
Cardiac neurosis	8	3	37.5	4	50.0	1	12.5		
Arteriosclerotic	82	13	15.8	19	23.2	44	53.7	6	7.3
Hypertensive	20	3	15.0	7	35.0	8	40.0	2	10.0
General systemic disease	3	1	12.5	2	25.0	2	25.0	3	37.5
Congenital defect	1								
Unknown etiology	20	4	20.0	9	45.0	6	30.0	1	5.0
Potential	44	24	54.6	13	29.5	5	11.4	2	4.5
Possible	14	11	78.6	2	14.3	1	7.1		
Total	421	93	22.1	133	31.8	156	37.0	34	8.1

Chronic myocarditis, as used in this study implies a condition which may be due either to a chronic infective process or to vascular changes causing an impairment of nutrition of the heart with the deposition of fibrous connective tissue in the myocardium.

HEART DISEASE CLASSIFIED BY ABNORMAL PHYSIOLOGY

According to the nomenclature of the American Heart Association a complete diagnosis of heart disease should include a statement of the etiological factor, the structural heart changes, the type of disturbance of physiological function, and data as to the functional capacity.

In Table 3, 441 of the group of 500 cases are classified according to abnormal physiology. It is noted that in 151 or 34.2 per cent regular sinus rhythm was the finding, 169 or 38.3 per cent gave evidence of hypertension, 102 or 23.1 per cent showed the presence of mitral incompetence, fifty-eight or 13.2 per cent showed the presence of sinus tachycardia, fifty-four or 12.2 per cent gave evidence of aortic incompetency, thirty-six or 8.2 per cent showed the presence of congestive heart failure, and twenty-five or

to carry on a slightly diminished activity in 37 per cent of the group activity was greatly diminished, and 8.1 per cent of the number were confined to bed and were unable to carry on any physical activity. Accordingly 77.9 per cent of the patients had various heart lesions which resulted in a reduced functional activity. Further study of table 4 reveals the fact that syphilitic heart disease caused greatly limited functional capacity while possible heart disease caused very little limitation of functional capacity.

SUMMARY AND CONCLUSIONS

1 A group of 500 patients, 392 of whom were white and 108 colored from various geographical sections of the country were hospitalized for heart disease by the Veterans' Administration. The heart disabilities were classified in accordance with the criteria established by the American Heart Association as to etiology, anatomic findings, abnormal physiology, and functional activity.

2 Arteriosclerotic hypertensive and syphilitic heart disease were found to be more common in the colored veterans while rheumatic heart

disease was found to be more common in the white veterans

3 An effort was made to ascertain the type of rheumatic infection which acted as the etiological factor of the cardiac disability. For this purpose 119 patients with rheumatic heart disease were selected for study. These patients gave a history of 153 rheumatic etiological factors. It was found that tonsillitis was the most frequent cause of rheumatic heart disease. Rheumatic fever was the second most common factor and arthritis was next in frequency.

4 The most frequent infectious diseases which were considered etiological factors of heart disease were influenza, pneumonia, and measles.

5 In the classification of heart disease by anatomic lesions it was found that the most common pathological types in the order of frequency were chronic myocardial disease, arteriosclerosis, cardiac enlargement, mitral insufficiency, cardiac hypertrophy, mitral stenosis and aortic insufficiency.

6 The classification of a group of 441 of the 500 cases according to abnormal physiological findings showed that the most frequent findings in the order of frequency were hypertension,

mitral incompetency, aortic incompetency, congestive heart failure, and anginal syndrome.

7 In a study of the degree of functional activity in heart disease it was found that 77.9 per cent of a group of 441 patients had various heart lesions which resulted in reduced cardiac function. Patients with potential and possible heart disease contributed the largest number to those able to carry on ordinary activity, syphilitic heart disease resulted in greatly limited functional activity, while possible heart disease resulted in very little limitation of cardiac function.

REFERENCES

- 1 Wood J Edwin Jr, Jones T Duckett and Kimbrough Ray D. The etiology of heart disease. A clinical study of 623 cases with certain observations on race and climate. *Am J M. Sc.* 172 185 1926
- 2 Schwab Edward H and Schulze Victor E. Heart disease in the American Negro of the South. *Am. Heart J.* 7 710 1931-32
- 3 Lays Clarence L. The etiology of heart disease in Whites and Negroes in Tennessee. *Am Heart J.* 8 608 1933-34
- 4 Gager Leslie T and Dunn W LeRoy. Heart Disease in Washington D C a study of etiologic types and the factors of race age and sex in 1200 cases. *Med Ann. D C.* 2 112 1933
- 5 Wyckoff John and Lingg Claire II. Etiology in organic heart disease (Statistical studies bearing on problems in the classification of heart diseases). *Am. Heart J.* 1 446 1926
- 6 Schwab Edward H and Schulze Victor E. The incidence of heart disease and of the etiological types in a southern dispensary. *Am Heart J.* 7 223 1931-32

EMBOLISM FROM SAPHENOUS THROMBOPHLEBITIS AND ITS PROPHYLAXIS*

BY JOHN B SEARS, M.D.†

THE customary passive attitude in dealing with thrombosis in a superficial vein is probably due to the comparative rarity of serious embolism from this source. A survey of the recent literature, however, indicates that the danger of an embolic accident or of an occasional death from such a thrombosis is not negligible.

Stone¹ reports two instances of pulmonary embolism, one fatal, in patients who developed saphenous thrombophlebitis after operation, the fatal one following cholecystectomy, the other following repair of hernia. Freeman² reports a fatal pulmonary embolism in a patient with thrombophlebitis of a varicose saphenous vein, autopsy showed that only the saphenous vein was involved, the vena cava, iliac, and femoral veins being normal.

In addition to those cases of superficial thrombosis following operation and those of spontaneous occurrence in normal or varicose veins, are the more recent ones subsequent to venoclysis and to the injection treatment of varicose veins. Tomarkin and Strauss³ quote three clear-cut examples of embolic death traceable directly

to thrombophlebitis in veins used for venoclysis. One observes occasionally, following a single injection of sclerosing solution into a varicose vein, the formation of a thrombus in all, or almost all, of the saphenous vein. The propagating thrombus thus formed is usually not firmly attached throughout its length, and such phenomena may account for the thirty embolic fatalities recorded up to 1933, indeed Matas⁴ suggests that many more have not been recorded.

In 1932, Harvey Stone¹, addressing the American Surgical Association, advocated ligation of thrombosed peripheral veins that develop after operations. He pointed out that embolism, rarely, to be sure, but none the less definitely, may convert a relatively simple situation into a dangerous or fatal one, and he emphasized the simplicity of the measures necessary to avert this complication. Finally he implied that intervention should not be limited to thrombosis occurring after operation or during pregnancy but should be applied to peripheral thrombosis generally.

It is our purpose to lend clinical support to Stone's teachings by the presentation of three case reports of pulmonary embolism from the saphenous system, the first, that of a young man who was suffering from migrating phlebitis in

*From the Peripheral Vascular Clinic, Beth Israel Hospital.
†Sears, John B.—Assistant in Surgery, Massachusetts General Hospital and Beth Israel Hospital. For record and address of author see This Week's Issue, page 894.

association with Buerger's disease, the second, that of an old man who was recovering from varicose thrombophlebitis, the third, that of a woman with postoperative phlebitis. As a result of these experiences we are recommending simple vein ligation in all instances of spontaneous, superficial, progressive or extensive thrombophlebitis above the knee, in order, first, to avoid embolism, and, secondly, to shorten the period of confinement to bed. We are thus in complete accord with Stone, and with him we join in asking: Why put a patient to bed for weeks, on a passive or expectant form of treatment, when there is always the possibility of a clot getting loose?

CASE 1

B. I. H. 22856A S. E., an eighteen year old American Jewish shoe salesman

In January of 1932 he had a simple appendectomy; his convalescence was complicated by mild urethritis following catheterization. Eleven days after his operation he was discharged; his wound was well healed and his urine contained two to three leucocytes per high power field.

Eight months after the operation he suffered pain just above the medial aspect of the left ankle and in two weeks the pain was more severe and in the calf of the left leg. There was no history of trauma or sepsis. Examination showed an indurated warm tender area along the course of the internal saphenous vein of the left leg. When seen three days later the process had extended along the medial surface of the knee.

On October 2, 1932 he was referred to the Vascular Clinic. There was a tender area along the internal saphenous vein just below the left knee and a tender thrombosed area in the same vein in mid-leg. It was noted that his peripheral pulsations were good. When seen two weeks later the thrombophlebitis had extended to a point six inches above the knee. Temperature was 98.3 F. Pulse was 100. White blood count was 14,800. Hospitalization was advised for treatment and study. The possibility of migrating phlebitis in association with early thromboangiitis obliterans was considered and it was planned to study the vasomotor index to biopsy the thrombosed vein and finally to ligate the internal saphenous vein as a prophylaxis against embolism.

Early that evening (October 17, 1932) the patient was seized abruptly with sharp substernal pain and a fit of coughing followed by the expectoration of bloody sputum. He was cyanotic, dyspneic, and appeared extremely ill. There is no note of the physical signs. His response to morphine and oxygen was slow but satisfactory. Three days later in order to avoid the possibility of further infarcts, a ligation at the saphenofemoral junction was performed under local anesthesia.

This case illustrates the possibility of pulmonary embolism from the great saphenous vein in a patient suffering from migrating phlebitis probably associated with early thromboangiitis obliterans.

CASE 2

B. I. H. 12523 Miss F. H., a thirty-six year old Canadian nurse.

On October 26, 1931 she was admitted with the complaint of abdominal pain of two days duration. Abdominal examination revealed marked spasm and tenderness in the right lower quadrant. The

temperature on admission was 100.4 F (rectal), pulse 98, respirations 22. The urine was not remarkable; the white blood count was 14,000 per cu. mm.

There was no past history of phlebitis or varicose veins.

At operation a gangrenous appendix was found and removed and drainage was instituted. The pathologist reported acute suppurative gangrenous appendicitis.

The lumbar drain was removed on the fifth day; the pelvic drain on the tenth day and at the same time about two drams of seropurulent fluid were evacuated from the middle of the incision. The temperature, which had risen to 102.5 F the day after operation gradually reached a normal level on the tenth day.

On the thirteenth postoperative day the patient began to complain of constant, dull pain in the left thigh and calf. The internal saphenous vein could be felt as a firm tender cord in the thigh and leg. There was no swelling or deep tenderness suggestive of deep phlebitis. The afternoon temperature rose to 99.8 F. On the sixteenth postoperative day the patient suddenly became dyspneic, cyanotic and complained of a sense of impending death. Oxygen, morphine and artificial respiration were used; however the patient expired twenty-five minutes later. Permission for autopsy could not be obtained.

This case illustrates fatal pulmonary embolism from postoperative thrombosis of the great saphenous vein.

CASE 3

B. I. H. 16084 a seventy-two year old Russian Jew

On September 13, 1932 he suffered constant severe pain in the right leg; there were redness and tenderness along the medial aspect of the right leg and thigh particularly in the region just above the knee. His varicosities of many years duration, had never caused him discomfort up to this time. His family doctor ordered him to bed and he was treated by elevation and ice bags. Under this régime there was subsidence of pain, swelling and redness. The internal saphenous vein was involved from his ankle to within four inches of Poupart's ligament. On October 4 he suddenly experienced sharp pain in the right chest and expectorated thick bloody sputum. He was found in great pain and distress; his respirations were labored and his lips and mucous membranes were slightly cyanotic. There was a note on the physical examination to the effect that "expansion was limited on the right; tactile fremitus was diminished over the right chest posteriorly and this area was dull to percussion; over this region breath sounds were tubular and there were frequent moist crackles inspiratory rales." On the following morning in order to prevent the possible occurrence of further infarcts simple ligation at the saphenofemoral junction was done. The convalescence was slow and stormy nevertheless satisfactory and the patient was discharged ten days after admission.

This case illustrates the possibility of embolism from thrombosed superficial varicosities.

TECHNIQUE

Local anesthesia is used, and the operation may be performed in bed if the patient is too ill to be moved. An incision three to four cm long just below and parallel to the crease of the groin is made with the outer end of the incision just over the femoral pulsation. The saphenous vein is thus easily exposed just before it enters

the fossa ovalis. We would emphasize the importance of placing the ligature as closely as possible to the saphenofemoral junction in order to minimize thrombosis in the proximal segment. We prefer silk to catgut.

The technic is modified in the individual case. For *thrombosis not associated with varicose veins* simple ligation in continuity is adequate, biopsy or complete excision for purposes of study is permissible, and indeed, in one case clinched the diagnosis of early thromboangitis obliterans in a patient with faint dorsalis pedis pulsation. In those *patients who have varicose veins* we ligate and cut all the adjacent tributaries.⁵ This has ultimate value in minimizing recurrence after the thrombus has recanalized.

Since ligation has little or no effect on the thrombophlebitis process, it is necessary to warn the patient that symptoms will persist until the process has burned itself out, an alternative course which will definitely hasten convalescence.

is to excise thrombosed areas, as advocated by Homans⁶, but this does involve some additional risk.

SUMMARY AND CONCLUSIONS

- 1 Thrombosis of the saphenous vein may cause fatal embolism.
- 2 Report is made of three patients who suffered serious embolism, one resulting in death, from saphenous thrombophlebitis.
- 3 A surgical method of prophylaxis against such embolism is described.

REFERENCES

- 1 Stone, Harvey B. Surgical treatment of post operative saphenous thrombophlebitis. *Trans Am Surg Assoc* 50: 203, 1932. Also *Ann Surg* 96: 663 (Oct.) 1932.
- 2 Freeman, Walter. Pulmonary embolism. Report of a case. *J A. M. A.* 97: 1624 (Nov. 28) 1931.
- 3 Tomarkin, J. and Strauss, A. Venoclysis: dangers and contraindications. *Am J Surg* 55: 319 (Aug.) 1934.
- 4 Matas, Rudolph. Discussion. *Trans Am Surg Assoc* 50: 237, 1933.
- 5 Faxon, Henry H. Treatment of varicosities: preliminary high ligation of internal saphenous vein with injection of sclerosing solutions. *Arch Surg* 29: 794 (Nov.) 1934.
- 6 Homans, John. Thrombophlebitis of the lower extremities. *Ann Surg* 87: 641 (May) 1928.

MASSACHUSETTS MEDICO-LEGAL SOCIETY

SKELETON OF AN UNKNOWN PERSON*

BY WALTER W. FULLERTON, M.D.†

IN the early afternoon of February 27, 1928, a call came to me from the police, that a dead body had been found in the woods near the city of B.

On arriving at the place, which was in a scrub oak and brush-like woods, about 200 yards in from a rather quiet highway, on the outskirts of the city, the body was seen. This "body" was a complete skeleton, fully clothed, wearing an ordinary man's suit of blue, an overcoat and shoes. The skeleton and clothing could be raised en masse from the ground as freezing had taken place, and the whole mass was stiff as a board. It was lying on its back and slightly turned to the right side. The remains were taken to a local undertaker's rooms for further examination.

At this time a careful search in the vicinity of the skeleton was made, and the following things were found,—a felt hat, formerly a grayish color, but much discolored, with an indistinct trade-mark which could not be made out, a pair of gold bowed rimless, bi-focal glasses in the ice near the skull, a few teeth which had loosened and fallen out of the mouth, some of which showed evidence of dental work having been done on them. A considerable amount of sandy, slightly gray hair with touches of auburn and pale red in it, was also found on the ground at the back and base of the skull. About four to five feet distant from the skeleton's feet

and covered with leaves (mostly oak leaves) was found a No. 12 gauge double-barreled shotgun and "broken open." There were no shells in the gun; it was empty. Most careful search was made of the ground in the vicinity and no discharged, i.e., empty shells were found. The gun was very rusty and showed signs of exposure to the weather for some considerable time. At the distal end of the fore-piece of the gun, the triangular piece frequently set in the woodwork, mostly for ornamental purposes, became loosened and dropped out, but it was recovered and replaced. Aside from the weathering and rust, the gun was not damaged. The length of the body was estimated at from 5 ft. 10½ in. to 6 ft.

At the undertaking rooms, after the thawing had taken place, further examinations were made and the following facts noted. The flesh had entirely disappeared from every part of the skeleton, every bone as clean and dry as if specially prepared for museum purposes, except a small amount of saponified-like material, at former sites of buttocks and thighs, and a very little under the scapulae. The clothing had rotted in many places. The bones fell away from each other. No ligamentous structures or anything was left to hold them together. The ulna and radius of each arm came clean and clear from the sleeves of the coat, like new drum sticks. The small bones of the hands and feet all fell apart as the thawing took place, the same with the long bones and all the others. The skull was entirely clean, and no tissue was present on the surface or inside the cavity of it. A slight dry rattling or rustling could be heard

*Read before the Massachusetts Medico-Legal Society, October 3, 1934.

†Fullerton, Walter W.—Medical Examiner 1926-1933. First Plymouth District, Massachusetts. For record and address of author see *This Week's Issue*, page 894.

on shaking the skull, probably (as the skull was not opened) dried casings and debris of maggots, bugs, etc. In the sleeves of the coat were hundreds of these casings.

There was found on the skeleton a truss apparently for a left-sided hernia. This truss had been broken at some time, and it was evident where the repair had been made. In a coat pocket several loaded shells for a No. 12 gauge shot-gun were found. Some of these showed the effects of the weather. The wadding had become loosened and many of the shot were loose in the pocket.

The description of the clothing and other wearing apparel I have not given, nor the description of a few things found in his pockets, as they did not figure materially in identifying the remains.

The police inspectors did good work in tracing the clues to try and establish the identity of the skeleton. The first step was taken with the glasses which were found by the skull. They were found to be, in a general way, the glasses that would be apt to be worn somewhere around the 60 year age. They were finally found to have been made by a local optician in this city and made for Mr. X.

The teeth were next taken and after considerable effort, a local dentist was found who recognized the dental work as some of his own and he had done the work for Mr. X, the same man for whom the glasses were made.

The gun was shown to the dentist who did the dental work on the teeth, and strangely enough he recognized the gun as one that he had fitted into the fore-piece, the triangular shaped ornament referred to above. The original piece had been lost and he had made a form of "amalgam material" such as he used in filling cavities of teeth and had fitted it into the fore-piece of a gun for Mr. X.

The truss was then inquired into and because of the fact that it showed evidence of having been repaired, the inspectors took it to different places where such work might be done and had the good fortune to find the man by whom the repairing had been done. This man recognized the truss and remembered for whom he had done the work and it was for the same Mr. X.

The evidence relative to the teeth, the gun, the glasses, the truss, the color of the hair, the fact that the same Mr. X had been missing for a long time, that he was sixty-five years of age, all went to show without much doubt that identity had been well established as that of Mr. X. Note.—It was found that his bank account which was not a large one had dwindled down to nothing and no valuables were found in his clothing, indicating that he was pretty well out financially.

With the identity fixed as that of Mr. X the next matters to consider were the "Cause and Manner" of death. After the remains had been

observed at the undertaking rooms and the frost had disappeared from the clothing and the bones, the question came, What is the cause of death? As stated before, the bones of the skeleton were all clean, and free from necrotic material, so it was evident that it would be impossible to determine whether there had been any injury or pathological condition of the soft parts which might be the cause of death. There was left only the bony structures to view. The skull was intact, no evidence of injury or disease to be found. There were no fractures of the skull, leg or arm bones or of any of the other bones. With the bones all lying there and no apparent injury to them, it seemed that "Cause Unknown" would have to be signed on the "Blue Certificate."

While standing there by the remains and trying to see if some avenue would only open, the examining room became quite warm, and to my surprise, it being February, and everything having been frozen, maggots began to be seen, a few here and there, coming out of some of the bones. While observing this fact I also noted that the maggots seemed to have confined their work to the left side of the skeletal remains. Realizing that the physical conditions were the same for both sides of the body, I wondered why the maggots should not be on the other side as well. It was in the ribs that most of the activity of the maggots was seen.

The pelvic bones, ribs, vertebrae, clavicles and scapulae also the sacrum were then sent for x-ray examination. This showed that holes from which the maggots came out were not of their own making, as I in my ignorance had first thought, but were shot holes, and the shot were still in the bones. There were only eight or nine shot in all, and mostly in the lower ribs of the left side with one shot in each of two vertebrae. There was no evidence of shot in any of the other bones. The shot were removed, weighed and measured and were found to correspond with the No. 6 shot which were in the loaded shells in his pocket. Because of so few shot in the bony parts it seems quite certain that the muzzle of the gun must have been held against or very close to the body when discharged, and the load passed through the abdomen, in the space just above the pelvis toward the left through the soft parts, located between the crest of the ilium and the lower ribs on the left side of the body, with only a few defecting shot striking three ribs and two vertebrae. To me the first thought after seeing the maggots wriggling from the holes in the ribs, apparently where they had seemed to have bored their way in was, how strange it was for life to be there in such a cold month of the year as February usually is in our climate. The next impression was, How curious for them to have selected only one side of the skeleton to inhabit and work in! Why should they not work on both sides, the physical conditions being the

same? It was then that I decided upon the x-ray examination, which so nicely demonstrated the "Cause of death"—Gunshot Wound of the abdomen. The "Manner" of death was decided at the inquest, which was duly held, and the finding was given as "Probable Suicide."

After considering the case as a whole, there seem to be two or three questions which one might ask himself, or so it seems to me, such as, Why was the gun "broken open"? and would he have done that after suicide? If suicide, would he have "broken" the gun, then taken out the discharged shell or shells? If so, what did he do with them, as on most careful search of the vicinity, none could be found, nor any in his pockets. Another thought comes up. Could somebody roaming through the woods have come across the gun, picked it up, and extracted the empty shell or shells and kept them and then after noticing the body lying near, dropped the gun and gone away without revealing the fact of his discovery, for fear perhaps of in some manner becoming involved in the case, subsequently, and later getting rid of the shells?

Question of homicide? Nothing indicating anybody else or motives of any nature were obtained.

Accidental? The same queries as for suicide would arise.

DISCUSSION

MRS LEE: Was any effort ever made to find finger prints?

DR. FULLERTON: No, the gun must have been out there a season and a half or more. Even twiglets had grown through the lining of the coat. Anything to show imprints of fingers would have been worn out by that time. Outside of the rust, there was no evidence of anything wrong with the gun.

MRS LEE: How long had the man been missing?

DR. FULLERTON: I don't remember how long. We had a report from a local hotel that he had been missing for some considerable time, then later he was said to have been seen in Chelsea, Mass. After this no one seems to have seen him. The data were all indefinite. The time extended over a period of a year and a half or thereabouts. No one kept track of him or knew the time of his departure from Chelsea, where he was last reported to have been seen.

DR. GAY: How far was the gun from the body?

DR. FULLERTON: The gun was about four or five feet from the skeleton.

DR. GAY: It might have been disturbed by animals, I suppose?

DR. FULLERTON: I suppose so, but I don't know what animals would have been there.

DR. GAY: There were no cows there?

DR. FULLERTON: Not way in the brush, this was quite a distance from the highway, and one hundred feet from the cart path, right in the midst of the bushes. Some boys going through that section saw

the remains and they were the ones who reported the case.

DR. JONES: There is one phase of the matter of the death, whether it was suicide or homicide, and I didn't quite follow your description of what you concluded was the course of the shot, where it finally arrived.

DR. FULLERTON: In the direction of the pelvis, slightly above and toward the left. It must have gone through the soft part, almost like a bullet. There were only eight or nine shot in all the bones. The pelvic bones, vertebrae, scapulae, ribs, and clavicles were taken for x-ray examination, and there were no shot holes in any of them except three lower left ribs and two vertebrae near the dorsolumbar region.

MRS LEE: How do you think the gun could have been fired?

DR. FULLERTON: That is the question. I was thinking of several things that might have happened. I remember a case of a man who kept a loaded shot gun in a closet of his home, he took it from the closet and went to the side of his bed. The gun slipped and slid to the floor, the butt striking the base board of his room. The gun was discharged and he was shot in the abdomen. He moved a few feet only.

Of course, if this man had shot himself, it is easy enough to assume, perhaps, that he had staggered back, but why did he stop to open the gun?

DR. JONES: Were there any shot holes in the clothes?

DR. FULLERTON: The clothes were pretty well rotted, there were even little fine twiglets growing up through the lining of his coat. His overcoat was worn, but we didn't notice any holes in the clothes.

MRS LEE: Was the overcoat fastened?

DR. FULLERTON: As I recall the case, the overcoat was not buttoned closely, partly unbuttoned and slightly open. The clothing when handled would tear very easily, almost like tissue paper.

DR. CANAVAN: Did it look as though he disappeared in the winter time?

DR. FULLERTON: Probably so. And one reason why we did think it might be suicide was that he was always very particular when he went into the woods gunning, he always wore his regular gunning outfit, he never wore his ordinary street clothes in the woods.

DR. GAY: I don't suppose you could tell whether the gun was broken at the same time the man died or whether it was a recent thing? Wouldn't an accidental death be more consistent, as if he were going along and dragging the gun after him?

DR. FULLERTON: I suppose such a thing could be possible for an experienced gunner, as he apparently was. But I could hardly conceive of such a man dragging the gun along the ground with the muzzle close to him, and if so, without more scattering of shot than was evidenced here.

DR. BRICKLEY: Was it a top action lever? He could drop a gun and have it break open with a lever about three inches long.

DR. FULLERTON: That is something I didn't know. Then the question comes, where did the discharged shells go?

DR. JONES I have a fantastical idea. It is possible that from the direction of the wound he shot himself accidentally and that he couldn't get out and that he fired those two shells into the air and tried to get help and then in the process of unloading his gun and putting in other shells he may have recovered from his wound sufficiently and fired more shells.

Or it is possible considering the direction of the wound that he shot himself accidentally that he couldn't get out of the woods that he fired one or more shots in an attempt to get aid and that in the process of reloading he succumbed to the extent that he could fire no more shells.

DR. FULLERTON They made an extremely careful search all around the ground for quite an area at least an area where a man would throw the shells, and they couldn't find any empty shells around. They found the glasses and the teeth, and some of those had to be scraped out from the oak leaves.

DR. JONES Might he not have walked a considerable distance after he had shot himself?

DR. FULLERTON That is a question I don't believe I can answer as to how far a man could go with a shot through the bowels.

DR. JONES He can go most any distance. I know.

MRS. LEE From the direction of that shot I should think that he might have leaned against the barrel of the gun.

DR. FULLERTON Yes. I can conceive that it might be that way and also it could be an accident. What puzzled me so much was what I spoke about, the gun being opened.

DR. BRICKLEY You break your gun with your right hand, and you press the lever from left to right. If it fell on the left side, you could easily press the trigger.

DR. FULLERTON That is one of the interesting points to me about the thing in thinking over what did happen. I couldn't decide it.

DR. BRICKLEY I would like to hear from Dr. Jones as to how far that gentleman could travel with a number six in him.

DR. JONES That, no doubt, would enter into the medicolegal problem. How far can a man walk after he is shot?

I have had to see a great many men in all sorts of cases and in all sorts of circumstances and much to my surprise men do travel considerable distances to obtain help when shot.

The instinctive thing that a man does after one of these occurrences is to try to get help. When looking over a long row of men who were lying on litters after being shot I have found all sorts of things that were interesting.

In the first place most of them were conscious,

were talking quite rationally and suffered apparently no severe pain.

Some had serious spine injuries in fact an occasional one had the lower portion of his spine destroyed. As in this case many had serious belly wounds and these had no interference with their ability to reason or talk. Another curious thing is that they do not desire morphine generally but prefer cigarettes which the hospital corps men light and place in the victims' mouths.

Of course in head injuries, a decidedly different picture is present but in wounds below the diaphragm it is astounding to note how much they can do. Such things as perforating belly wounds sometimes do not stop them for a considerable time.

I remember a German whom I interviewed in a trench raid. Nobody knew that he had been shot for he had been walking and sitting for about three hours and had been interviewed by everybody in the company who could talk the least bit of German and he had a penetrating wound of the liver from which he later died.

Outside of extensive bone damage, hemorrhage is the thing that stops them and the time element depends on the blood vessels injured.

If this man had a hemorrhage from his iliac vessels or any of the larger vessels in their vicinity it would take but a minute or two for him to slump and fall to the ground. I can readily believe that if he shot himself with a gunshot into the abdomen and it did not produce a serious hemorrhage he might be on his feet and live for some time and it is possible in this case that he accidentally shot himself.

SPEAKER FROM THE FLOOR I think that is rather an interesting point that has been brought out in most textbooks as to the nearness of the shotgun to the body in trying to make a finding of suicide. Speaking of shotgun wounds three months ago I had a man attempt suicide by putting a shot through the mandible. He got up from his bed and put on his trousers and walked out to the ambulance. I don't think that it is an important factor in determining a question of suicide, the distance of your shot gun and revolver from the body. I can distinctly recall finding the gun several feet away.

I think with a shotgun wound of the abdomen a low wound would mean that they can travel a considerable distance. A man who puts a gun up against the running board of an automobile with the barrel near the ensiform cartilage can fall in his tracks. But the one with abdominal wounds can walk a considerable distance.

DR. JONES I want to say that Dr. Fullerton's paper is excellent. One interesting feature in this case is in regard to the maggots and other insect life or remains found in the body.

I remember reading some years ago a small book called "Death and Sudden Death" by P. Brouardel. If I remember correctly there was a tremendous amount of fine information relative to the subject of insect life in a dead body.

THE NEW HAMPSHIRE MEDICAL SOCIETY

OFFICERS OF COUNTY SOCIETIES 1935-36

BELKNAP COUNTY

President Raymond J Turley, Meredith
 Vice-Pres Laura Jacques, Tilton
 Sec Treas Clifton S Abbott, Laconia
 Councilor Clifton S Abbott, Laconia
 Delegates Richard W Robinson, Laconia,
 John R Perley, Laconia
 Board of Censors Park R Hoyt, Lakeport,
 Chester L Smart, Laconia, Clifton S Ab-
 bott, Laconia

CARROLL COUNTY

President Francis J C Dube, Center Ossipee
 Vice-Pres W J Paul Dye, Wolfeboro
 Sec-Treas Charles E Smith, Conway
 Councilor Charles E Smith, Conway
 Delegates William J Paul Dye, Wolfeboro,
 Edwin C Remick, Tamworth

CHESHIRE COUNTY

President Walter H Lacey, Keene
 Vice-Pres Walter F Taylor, Keene
 Sec-Treas John J Brosnahan, Keene
 Councilor Arthur A. Pratte,* Keene
 Delegates Osmon H Hubbard, Keene, George
 S Emerson, Fitzwilliam
 Board of Censors Arthur A Pratte,* Keene,
 Harry G Williams, Keene, Walter F Tay-
 lor, Keene

COOS COUNTY

President Walter F Noyes, Colebrook
 Vice-Pres Lewis C Aldrich, Jefferson
 Sec Treas Mertrude B Dennis, Colebrook.
 Delegates Albert C Johnston, Gorham, Bruce
 Kelly, Colebrook

GRAFTON COUNTY

President Robert M Deming, Glencliff
 Vice-Pres Ralph G Perry, Wells River Vt
 Sec-Treas Leslie K Sycamore, Hanover
 Councilor Arthur T Downing Littleton
 Delegates Elmer M Miller, Woodsville,
 Leslie K Sycamore Hanover
 Board of Censors Franklin E Spear, Woods
 ville John M Page, Littleton, Arthur W
 Burnham, Lebanon

HILLSBOROUGH COUNTY

President Zenon A Laviole Manchester
 Vice-Pres Henry H Dearborn Milford
 Sec Treas Deering G Smith, Nashua
 Delegates Joseph E Laroche, Manchester
 Roland J Joyce Nashua, Byron D Pease,
 Greenville Deering G Smith, Nashua,
 Clarence E Dunbar, Manchester
 Board of Censors Harry M Morse, Peterboro,
 Ezra A. Jones Manchester, Philip McQues-
 ten, Nashua

MERRIMACK COUNTY

President James B Woodman Franklin Falls
 Vice-Pres Wallace H Tarbell Contoocook
 Sec-Treas Warren H Butterfield, Concord
 Delegates Henry H Amsden, Concord, Alex-
 ander A. Beaton Franklin
 Board of Censors William H. Mitchell,
 Loudon George M Crowell Suncook Fred
 erick M Robertson*, Bristol

ROCKINGHAM COUNTY

President Donald W Leonard, Exeter
 Vice Pres Chester F McGill, Portsmouth
 Sec Treas Wendell P Clare, Portsmouth
 Councilor Abram W Mitchell, Epping
 Delegates Eugene A. Vickery, Portsmouth,
 Cleon W Colby, Exeter, Lawrence R Haz-
 zard, Portsmouth.
 Board of Censors Abram W Mitchell, Epping,
 Ralph H Barker, Derry, Thomas W Luce,
 Portsmouth

STRAFFORD COUNTY

President Bernard J Manning, Dover
 Vice Pres Edward G Marcotte, Dover
 Sec-Treas Thomas J Morrison, Somersworth
 Councilor John A Hunter, Dover
 Delegates Harry O Chesley, Dover, Jeremiah
 J Morin, Rochester
 Board of Censors Joseph L McLaughlin,
 Farmington, Peter J Doyle, Dover

SULLIVAN COUNTY

President Bernard P Haubrich, Claremont
 Vice Pres Donald C Moriarty, Newport
 Sec Treas Henry C Sanders, Jr, Claremont
 Councilor Emery M Fitch, Claremont.
 Delegates Burton D Thorpe, Newport, Charles
 E Buchanan, Claremont
 Board of Censors Donald C Moriarty, New
 port Ernest L Huse, Meriden, John H
 Munro, Sunapee

*Deceased

MISCELLANY

PERSONAL ITEMS

Dr R A Hernandez, who recently returned from a trip to Cuba and Louisiana, spoke of conditions in Cuba before the Laconia High School and Kiwanis Club March 5

Dr John R Perley and Dr Melba Stewart of Laconia, pathologist at the Laconia Hospital, were married at the home of Dr Clifton S Abbott March 8 They will make their home in Lakeport.

Dr Charles E Smith, Secretary of Carroll County, has returned from a three months' absence in New York where he has been taking a postgraduate course in surgery

Dr and Mrs William M Bronson of Lancaster recently returned from a motor trip to Florida

Dr Park R. Hoyt of Lakeport spoke at the regular meeting of the Kiwanis Club at the Laconia Tavern February 25 Dr Hoyt told of the functions of the Board of Medical Examiners in New Hampshire and compared their duties and regulations with those of the boards of other states

HOSPITAL ITEMS

The annual Charity Ball for the benefit of the Carrie F Wright Hospital in Newport, held in the Opera House Friday evening, March 1, drew a large crowd The unusually fine program, "Winter Wonderland," was very much enjoyed

Approximately \$75 00 was cleared for the local hospital at a series of telephone bridge parties held in Woodsville during the latter part of February. The cooperation and interest in this first attempt at a telephone bridge is most heartily appreciated by the hospital committee.

The Laconia Rotary Club conducted its annual fair for the benefit of the Laconia Hospital February 23. Dr Chester L. Smart was the General Chairman.

The new maternity building of the Portsmouth Hospital was opened for public inspection on March 9. This is one of the most modern maternity homes in this section of the country. The first baby to be born in the new maternity building will be presented with a silver mug by the doctors on the hospital staff.

The Huggins Hospital of Wolfeboro has been bequeathed \$4 000.

Billy B. Van has presented the nurses of the Carrie F. Wright Hospital in Newport with a building that is to be moved onto the hospital property where it is to be transformed into a club room for the girls and visiting nurses.

NURSES

The annual meeting of the Keene District Nurses Association was held Monday March 4. The organization is beginning its fifteenth year of service to the community.

The regular meeting of the Nurses Alumnae was held at the Community House in Littleton March 7. Miss Hazel Bryant, R.N., public nurse gave an interesting account of her work in the community.

Members of the New Hampshire Graduate Nurses' Association met in Concord March 13 for their first quarterly meeting of 1935. Miss Mary Roberts, editor of the *American Journal of Nursing* spoke on "The Eight Hour Day."

Miss Rosanna O'Donoghue, Superintendent of the Portsmouth Hospital was one of the principal speakers at the meeting of nurses held at the University of New Hampshire at Durham March 28.

MEETINGS

"Maternal Hygiene and Infant Hygiene" was the theme of a vocational talk by Dr. Ralph N. Jones before the Whitefield Rotary Club Thursday March

14. Dr. Jones traced the growth of knowledge from ancient times to modern and the resulting continuous reduction in mortality of mother and child.

Dr. Philip LaFrance of Laconia presented a paper on "Arthritis" at the regular meeting of the Belknap County Medical Society March 19. The meeting was held at the Laconia Tavern with Dr. Raymond Turley of Meredith President, presiding.

The second of a series of medical meetings was held at the Exeter Hospital March 20. The speaker at this meeting was Dr. E. Granville Crabtree of Boston who spoke on "Disorders of the Urinary System Encountered in General Practice."

The annual meeting of the Woodsville Cottage Hospital was held Wednesday afternoon, March 27. Miss Shaw, R.N., Superintendent of the Hospital gave an encouraging report of the year's work.

CLINICS

The bimonthly meeting of the cancer clinic was held at the Elliot Community Hospital in Keene March 13. Dr. Walter H. Lacey is in charge of the work in this vicinity.

Thirty-six patients were examined at the tuberculosis clinic at the Elliot Community Hospital March 26 under the auspices of the New Hampshire Tuberculosis Association. Dr. Robert B. Kerr of Manchester was examining physician.

NEW MEMBERS

Louise M. Paul, Sanbornville; L. B. Copenhagen, North Woodstock; Nathan Brody Belmont, Ursula Sanders, Concord; Carl A. Dahlgren, Concord; Paul G. Bacon, Charlestown; Albert F. Maxwell, North Conway; Samuel Fierlier, Ashland.

RADIO

The Committee on Public Relations, Public Policy and Legislation arranged the following series of broadcasts over Station WFEA at Manchester on succeeding Thursday evenings from 7:15 to 7:30.

April 11 — Dr. Carleton R. Metcalf, Concord "Health Insurance." April 18 — Dr. George C. Wilkins, Manchester "Cancer." April 25 — Dr. Ezra A. Jones, Manchester "Infantile Paralysis." May 2 — Dr. Charles F. Nutter, Nashua, "Saving the Eyesight." May 9 — Dr. Loren F. Richards, Nashua, "Medical Fads and Fancies." May 16 — Dr. Robert B. Kerr, Manchester "Tuberculosis."

MEDICAL PROGRESS

PROGRESS IN THE DIAGNOSIS AND TREATMENT
OF SYPHILIS, 1934

BY AUSTIN W. CHEEVER, M.D.*

WE find the emphasis in literature this year along the lines of general education education to prevent infection as far as possible, and education to provide speedy diagnosis and proper treatment when infection occurs. Under the first heading comes the increased discussion of the detection and treatment of syphilis in the pregnant woman. The Cooperative Study Group¹ has published the results of its study of the outcome of pregnancy in syphilitic women as relates to treatment. The data comprise 3,817 women under observation or treatment for syphilis for six months or more, of whom 603 were pregnant during or after treatment for their present syphilis. Much arsenical and little heavy metal treatment instituted early insured the children being born alive and apparently nonsyphilitic in 85 per cent of the cases, but when treatment was started after the fifth month of pregnancy, this percentage dropped to 55. Treatment with little of both arsphenamine and heavy metal produced living, apparently nonsyphilitic children when begun before the fifth month. Best results were obtained from adequate treatment in the form of ten injections of an arsenical and ten of a heavy metal. When instituted before the fifth month, the results were living, apparently non-syphilitic children in 91 per cent of the cases. The authors also present evidence that the syphilitic mother should be given early and adequate treatment throughout every pregnancy regardless of her Wassermann reaction. On this same subject Ingraham and Kahler² point out that because the incidence of syphilis is less among the higher classes than in the clinic class, it is less looked for and consequently more cases here escape detection. Furthermore they believe that syphilis in a latent stage as it exists in most pregnant women is so difficult to detect that it should be suspected in every case if one hopes for a successful termination of pregnancy and a healthy child, which cannot be expected in the presence of infection of this nature even though quiescent. McKelvey and Turner³ are emphatic in their conclusions after a study of syphilis and pregnancy a test should be done on the blood of the umbilical cord and a study made of the placental histology as aids in the diagnosis of congenital syphilis, and these measures should be carried out on all patients not proved during pregnancy to be free from syphilis. Realizing

the importance of these conclusions which have been reached after much study, we can readily understand that neglect to perform a blood test on every pregnant woman may be criminal in that it may deprive her of her chance to have a living, healthy child.

In order to extend education toward preventing infection, the Connecticut State Health Department⁴ inaugurated a series of illustrated lectures on venereal disease to be given in the civilian conservation camps. In this way they expected to reach two hundred men in each of the twelve camps already organized and to carry on the work in the newly organized camps. With this same idea in mind, to educate as many people as possible, in November Thomas Parran, Jr.,⁵ New York State Commissioner of Health, arranged in one of his radio talks on public health needs, to give a brief non-technical reference to life-saving possibilities through scientific action in the control of syphilis. The officials of the Columbia Broadcasting System, however, put a last-minute ban on any mention of syphilis control. Parran not only refused to speak under the circumstances, but protested further by resigning from the Public Health Committee of the National Advisory Council on Radio in Education. His action has brought forth much commendatory comment. The following editorial⁶ seems particularly apropos.

"It is a pity indeed that radio, with perhaps the greatest opportunities for educational publicity that have ever existed, should so often shoot wide of the mark.

Possibly the self-appointed guardians of a nation's morals, purveyors of a publicity such as has never before been known, may yet be brought to realize the fact that syphilis is a curable disease, more susceptible to control than is tuberculosis, if only the facts could be made universally known and hammered home. Until this stage in its progress has been reached we must accept what many of us have already suspected—that if radio is still in its infancy, that infancy is not so much a matter of technique as of intellect."

The infection with spirochetes through blood transfusion is a preventable accident to which attention is being more and more directed. Here again education will help. In accepting donors for transfusions, greater attention must be given to the possibilities of syphilis too early for the appearance of a primary. At a meeting of the Société des médecins des hôpitaux de Paris⁷ special attention was given to this subject and cases reported.

In regard to the much discussed and mooted question of incidence comes a statement from

*Cheever Austin W.—Assistant Physician to Syphilis Out-Patient Department Massachusetts General Hospital. For record and address of author see "This Week's Issue" page 894.

the Laboratories of the Life Extension Institute of New York City* that approximately two per cent of the general average of the more responsible white population in and around New York show laboratory evidence of syphilis. Meninger* has established certain facts regarding incidence of juvenile parietic neurosyphilis its sex distribution and age at onset. He finds that this group makes up less than two per cent of all cases of general paresis, that the ratio of males to females is 1.36 to 1 as compared with a ratio of 3.43 males to 1 female in the adult form of the disease. The time of onset was between the ninth and eighteenth years in 68 per cent of the cases observed.

"Treat by schedule and not by Wassermann test" as the slogan of the best modern practice is offered by the Coöperative Study Group¹⁰ in their résumé of modern principles in the treatment of early syphilis. Their study is based on an aggregate material larger than any as yet evaluated in the literature. The management of early syphilis they find, is amenable to a considerable degree of routinism, standardization and mass technique in contrast with the individualism necessary in late syphilis. They show clearly the dangers of the rest periods and irregularity of treatment, as well as the inadequacy of the short arsphenamine course in the intensive system. They cite figures to prove that twenty injections of an arsphenamine make up the approximate number a patient with early syphilis should have so that he may not become a menace to family and community through infectious relapse. In the nervous system formerly thought to be injured by an arsenical, it appears that three times as many relapses and other involvement develop if less than twenty injections are administered than when more are given. The failure of the blood Wassermann to reverse, they believe, is more a matter of how treatment is given than of how much is administered. A little treatment continuously given is more than twice as effective as that intermittently applied, and more than four times as effective as that irregularly given. Much arsphenamine and much heavy metal are far more effective than little arsphenamine and little heavy metal in securing a negative Wassermann reaction within the first three months, when the drugs are continuously used. As to the average amount of treatment leading to good results, they fix from twenty to twenty nine injections of an arsphenamine and a similar amount of heavy metal thus making thirty injections of an arsenical a therapeutic objective in place of the "forty or over" suggested by earlier investigators. They describe at length an alternating continuous arsphenamine bismuth system and set forth reaction prevention principles.

In discussing the adequacy of modern meth-

ods of treatment in preventing late sequelae, Wile¹¹ refers to the fact that the most important factor in the causation of late accidents is inadequate treatment during the first year of the infection. Intensive treatment during the early period is the best safeguard against late tissue damage. He hesitates not at all in saying that physicians are better prepared than formerly to prevent late sequelae the most common of which are accidents in the cardiovascular system, late neurosyphilitic lesions and the manifestations of congenital syphilis, all of which are generally preventable.

On the subject of drugs, Harrington¹² has given us for general reading descriptions of some of the many bismuth preparations with an account of the experimental work which forms the basis for their use, their method of absorption and elimination, and their effectiveness. The article carries with it an excellent bibliography. The excretion of iodobismutol after intramuscular injection in therapeutic dosage in man and rabbit has been investigated by Hanzlik et al.¹³ They consider that their results showed that the drug compares favorably with other soluble bismuth products. Cannon¹⁴, writing on the value of silver arsphenamine, states that he considers old arsphenamine the most efficacious remedy and first choice for early syphilis, he places silver arsphenamine above neoarsphenamine. He has produced results with it, apparently, comparable to those with arsphenamine or neoarsphenamine. Spiegel¹⁵ has reported on the use of acetarsone (stovarsol) intravenously for neurosyphilis. His experience was with the treatment of twenty five patients, which he feels is too limited a number to warrant an opinion as to its superiority in arresting or curing a pathologic process, but he does feel justified in saying that it appears to be efficient and rapid in producing results in the treatment of the various manifestations of neurosyphilis.

A drug which seems to show promise and which may soon appear on the market under the name of Mapharsen¹⁶ is arsenoxide. This was once recognized by Ehrlich as having exceptionally high therapeutic value but was discarded by him as far too toxic. It has been purified and reinvestigated and is being tried in several large clinics.

Malarial therapy is advised in the treatment of resistant somatic syphilis and also in resistant interstitial keratitis. Dennie and McBride¹⁷, working on the former, believe that resistant syphilis, other than that of the central nervous system, which fails to respond to routine treatment does so not because of the inefficiency of arsenic or the other antisyphilitic drugs but because of the failure of the defense mechanism of the body which they believe may be activated by the administration of malaria, heat therapy, or typhoid vaccine, named in the order of their effi-

ciency Though heat, well within the limit of human tolerance, will kill *Spirochaeta pallida* in vitro, heat alone is an activating factor and of itself does not destroy the organism of syphilis. The experience of these investigators shows that patients who had temperatures between 106° and 108°F if given no further treatment had a recurrence of symptoms. That malarial therapy possesses distinct advantages over any other known treatment for syphilitic interstitial keratitis is the opinion of Ambler and Van Cleave¹⁷, who recommend its use in addition to the other usual forms of antisyphilitic treatment.

Startling results have been reported regarding the alleviation of symptoms of central nervous system syphilis following forced spinal drainage, and it was decided to use this procedure in a case of taboparesis complicated by gastric crisis. Fellows¹⁸ explains that the treatment consisted of prolonged simultaneous intravenous injection of hypotonic saline solution and the drainage of the cerebrospinal fluid. The stimulation of the production of new cerebrospinal fluid was made by the lowering of the osmotic pressure of the blood by the administration of large volumes of water by mouth or by the intravenous injection of hypotonic salt solution. This is probably the only case reported in literature, according to the author, of the use of this therapy in gastric crisis.

A plan to evaluate independently serologic procedure for the diagnosis of syphilis in the United States has been worked out by the United States Public Health Service cooperating with the American Society of Clinical Pathologists¹⁹. Specimens of blood from at least 1 000 individuals are to be collected and distributed to the laboratories of those serologists who have described original modifications of a complement-fixation or precipitation test. The findings will be interpreted by a committee of five, consisting of two specialists in the field of clinical syphilology, two members of the American Society of Clinical Pathologists, and an officer of the United States Public Health Service.

The Kline test is recommended by Rein and Feldman²⁰ for routine dental practice. The test can be performed with a few drops easily obtained from a bleeding socket following an extraction. It is predicted that many cases of concealed or latent syphilis might be detected in this way. This same test is also recommended for the use of life insurance companies, whose needs are somewhat unusual. The Kline seems ideal in the opinion of Rein and Le Moine²¹ in that so small an amount of blood is required it is easily taken from a finger puncture and can be sent with safety long distances to a laboratory, for the specimens are satisfactory for testing as long as ten days after collection, and in their opinion the test is more sensitive and accurate than the Wassermann and Kahn.

Dahr²² used Chevrak's method on 600 speci-

mens. Because this test can be performed with a dried drop of whole blood and the specimen kept for several days before it is examined, it has been thought that it would be an easy method for the general practitioner or for those for whom laboratory service is obtainable at great distance, and its easy withdrawal would make it helpful in taking tests on children or obese persons. Dahr used the Kahn, Meinicke clarification, and Wassermann tests as controls and found the results harmonized in over 98 per cent.

Berk and Hinton²³ compared the spinal fluid and the Hinton reactions on the blood in 787 cases in which there had been infection by syphilis. There was not a single instance where the spinal fluid was definitely pathologic when the Hinton reaction on the blood was negative. There were, however, fifteen cases (slightly less than 2 per cent of the whole series) in which the spinal fluid was doubtful and the Hinton blood reaction negative, thirteen of these had doubtful spinal fluids on the basis of the gold sol alone. The authors conclude that a negative Hinton reaction on the blood, when verified by repetition, almost wholly excludes the likelihood of there being laboratory evidence of neurosyphilis obtainable by lumbar puncture.

The Massachusetts Department of Public Health, after several years of study of the comparative merits of blood tests, has decided in favor of the Hinton test and has adopted it for official routine purposes.

There are more obscure troubles due to syphilis than the average physician is aware of according to Astrachan²⁴. Of 313 new syphilitic cases for which treatment was sought in the skin clinic of the New York Postgraduate Hospital or which were transferred there for this purpose from other departments, 40 per cent (126 persons) did not suspect syphilis. In 35 per cent of these 126 cases, the infection was discovered accidentally by a routine Wassermann test. The patients came complaining of rheumatic pains, eye troubles, heart diseases, gastric disturbances, dysfunctions of the nervous system, etc., which shows that even in ailments which are supposedly never, or very rarely, caused by syphilis, we still have to consider it as a possible etiologic factor.

Biederman²⁵ makes a preliminary report of a condition that he hopes may be another diagnostic sign. It is concerned with the appearance of the anterior pillars of the throat which turn from the healthy pinkish color in the normal throat to a dark, dusky red shade in a well-defined congested area in a latent syphilitic person. Not every case of syphilis presented this change and not every patient showing this change could be proved syphilitic. However, this draws attention toward a sign which may have importance.

The cervix should be examined for primaries,

but this is regularly neglected by everyone. Morrison²⁸ calls attention to this omission and its possibility for delaying diagnosis.

To the complications of treatment Bragman²⁷ adds a case of dermatitis from trypanamide a decidedly rare accident after the pentavalent arsenicals. The management of postarsphenamine dermatitis is still of interest. Among the suggestions are the use of dextrose, insulin, calcium therapy and liver therapy. Shaffer²⁹ reviews the medical management of this condition and records his experience with hypertonic solution of dextrose. It is evident that it is not necessary to limit our efforts in postarsphenamine dermatitis to sodium thiosulphate.

The relationship between the syphilitic in individual and meteorologic conditions, which we now accept as chance occurrences, may be explainable. Petersen²⁵, in his article on American Distribution of Tabes and Paresis discusses the concordance of the track of these diseases in America with the major storm tracks as they cross the continent, concentrating over New England and the Middle Atlantic States as the storms go out to sea. Petersen explains that tabes and paresis are relatively rare in the tropics and southern hemisphere and that in the northern latitudes the combined effect of syphilis and meteorologic battering induce degeneration in a higher percentage of cases of syphilis than occurs in milder climates. Excellent maps and graphs make the article convincing.

Progress is being made in the supervision of specialism. The current year saw the first examinations by the newly created board for the certification of specialists in dermatology and syphilology. The American Board of Dermatology and Syphilology³⁰ as it styles itself was formed by the appointment of four members each from the American Dermatological Association and the Section on Dermatology and Syphilology of the American Medical Association. It is the aim of this board to raise the standards of practice and training. It grants certificates to candidates who, having voluntarily submitted to its examinations, are found to meet its requirements. This is the fourth national board to be set up in the specialties. When such boards are functioning, there will no longer be any need for the state to interfere in the regulation of

specialists, and thus dangers from political interference will be eliminated.

REFERENCES

1. Cole, Harold N. Moore, Joseph Earle. O'Leary Paul A. Stokes John H. Wile, Udo J. et al. Syphilis in pregnancy. *Ven. Dis. Inform.* 15: 12 (March) 1934.
2. Ingraham N. R. Jr. and Kahler J. E. The diagnosis and treatment of syphilis complicating pregnancy. *Am. J. Obst. & Gynec.* 27: 134 (Jan.) 1934.
3. McElvelley J. L. and Turner T. B. Syphilis and pregnancy. *J. A. M. A.* 102: 603 (Feb. 17) 1934.
4. Medical News. *J. A. M. A.* 102: 375 (Feb. 3) 1934.
5. Dr. Farran and the radio. *Bull. Mass. Soc. for Social Hygiene*, Vol. IV Dec. 1934.
6. New Eng. J. Med. 211:1031 (Nov. 20) 1934.
7. Paris Letter. *J. A. M. A.* 102:1173 (May 26) 1934.
8. Short, James J., and Kelley Margaret F.: Incidence of syphilis in the general population and a comparison of the Kahn and Wassermann tests. *New Eng. J. Med.* 210:417 (Feb. 3) 1934.
9. Meeninger William C.: Juvenile parietic neurosyphilitic studies. *Am. J. Syph. & Neurol.* 13: 436 (Oct.) 1934.
10. Stokes John H., Cole, Harold N., Moore, Joseph Earle; O'Leary Paul A., Wile, Udo J. et al. Standard treatment procedure in early syphilis. *J. A. M. A.* 103:1287 (April 21) 1934.
11. Wile, Udo J. The adequacy of treatment in the control of syphilis. *J. A. M. A.* 103: 648 (Sept. 1) 1934.
12. Harrington, Helen. Bismuth in the treatment of syphilis. *Am. J. Syph. & Neurol.* 13: 468 (Oct.) 1934.
13. Hanzlik, P. J., Mehtrens, H. G. and Spaulding, J. B. Iodobismutol. Clinical excretion of bismuth. *Arch. Dermat. & Syph.* 29:1288 (Feb.) 1934.
14. Cannon, A. Benson. Value of silver arsenobenzene in the treatment of early syphilis. *J. A. M. A.* 10: 68 (Jan. 27) 1934.
15. Spiegel Leo: Treatment of neurosyphilis with acetarsone (acetarsol) given intravenously. *Am. J. Syph. & Neurol.* 13: 56 (Jan.) 1934.
16. Dennis Charles C., and McBride, William L.: Treatment of resistant syphilitic syphilis. *Arch. Dermat. & Syph.* 29:1 (July) 1934.
17. Ambler J. V. and Van Cleave J. V. Malarial therapy in syphilitic interstitial keratitis. *J. A. M. A.* 10: 1553 (May 13) 1934.
18. Fellows, Ralph M. Forced spinal drainage in the treatment of a case of gastric crisis. *Am. J. Syph. & Neurol.* 13: 595 (Oct.) 1934.
19. Cunningham H. B., Hazen H. H., Sanford Arthur H., Renner Francis E., Simpson Walter M. and Vanderlohr R. A.: The evaluation of serodiagnostic tests for syphilis in the United States. *J. A. M. A.* 103:1705 (Dec. 1) 1934.
20. Rein, Charles Robert, and Feldman, M. Hillel: A simple method of detecting syphilis in routine dental practice. *Am. J. Syph. & Neurol.* 13: 440 (Oct.) 1934.
21. Rein, Charles Robert, and Le Moine Marguerite. Value of Kline precipitation test for the detection of syphilis in applicants for life insurance. *Arch. Dermat. & Syph.* 29: 130 (Aug.) 1934.
22. Deutsche med. Wchnschr. 60: 94 (Jan. 10) 1934; reviewed *J. A. M. A.* 10: 1113 (Mar. 21) 1934.
23. De Z., Arthur and Hinton William A. The value of a negative Hinton test in the exclusion of neurosyphilis. *Am. J. Syph. & Neurol.* 13: 92 (Jan.) 1934.
24. Astrachan G. S. David. Unsuspected syphilis. *Am. J. Syph. & Neurol.* 13: 211 (July) 1934.
25. Blüdderman, Joseph H. A preliminary report of another diagnostic sign. *Am. J. Syph. & Neurol.* 13: 306 (July) 1934.
26. Morrison Marriott T. Chancres of the cervix. *Am. J. Syph. & Neurol.* 13: 196 (April) 1934.
27. Bragman Louis J. Trypanamide dermatitis. *Am. J. Syph. & Neurol.* 13: 208 (July) 1934.
28. Shaffer Loren W.: Treatment of postarsphenamine dermatitis. *Arch. Dermat. & Syph.* 29: 173 (Feb.) 1934.
29. Petersen, William P.: The significance of the American distribution of tabes and paresis. *Am. J. Syph. & Neurol.* 13: 75 (Jan.) 1934.
30. Wile, Fred. The American Board of Dermatology and Syphilology. *Arch. Dermat. & Syph.* 29:1 (Jan.) 1934.
31. Moore Joseph Earl. The Modern Treatment of Syphilis. Footnote page 67.

CASE RECORDS

of the
MASSACHUSETTS GENERAL
HOSPITALANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C CABOT, M D

CASE 21191

PRESENTATION OF CASE

A thirty-two year old American housewife entered complaining of prolonged uterine bleeding and weakness

Approximately seven years before entry the patient developed amenorrhea. This condition lasted about two years at the end of which time her menstrual periods recurred and were regular. Three years before entry she noticed that her periods were increasing in length although the amount of bleeding was not excessive. Nine months before entry she flowed steadily for nine weeks. Bed rest for four months improved this condition somewhat. She became very weak and fatigued easily upon the slightest exertion. Two months before entry she began to flow again. This period, during which she used two or three pads a day, lasted six weeks. After a cessation of about four days the flow started again and continued until admission. Except for generalized weakness there were no other symptoms.

She had been married thirteen years. She had one child ten years of age which was living and well. There were no other pregnancies.

Both her mother and husband had tuberculosis.

Physical examination showed a well-developed and nourished but extremely sallow woman. The skin and mucous membranes were pale. The heart and lungs were negative. Abdominal examination showed a hard tumor mass approximately 7 centimeters in diameter in the left lower quadrant. A pelvic examination showed a bloody discharge over the vulva. The cervix was pushed upward and to the right. In the left vault there was a large, hard, freely movable tumor, apparently the same tumor that was felt upon abdominal examination.

The temperature was 98.8°, the pulse 85. The respirations were 20.

Examination of the urine was negative. The blood showed a red cell count of 3,850,000, with a hemoglobin of 45 per cent.

On the fourth day a complete hysterectomy was performed. She had an uneventful convalescence and was discharged two weeks after operation. The patient was last heard from four and a half years after discharge and stated that she was in the best of health.

DIFFERENTIAL DIAGNOSIS

DR. LANGDON PARSONS This is the sort of menstrual disturbance we see usually with environmental change. We usually see it in girls going away to college and very frequently in immigrants, where it may be either environmental or climatic, but it is a fact that under such conditions periods of amenorrhea occur.

Nothing is said about the interval between periods. It is interesting that when the periods resumed following the long interval of amenorrhea they were perfectly regular and normal in duration and amount, rather than profuse and irregular as you might expect with a functional type of bleeding. Obviously there is some disturbance in the normal mechanism. One wonders whether this is a functional type of disturbance or whether we will find an organic cause and, if organic, whether the disturbance is to be found locally or possibly as a result of some general systemic disease. We know that patients with lowered metabolic rate and partial myxedema will go on to menorrhagia. Possibly this amenorrhea phase might be associated with some hyperactivity on the part of the thyroid. We know that hyperthyroid patients tend to have amenorrhea. It is possible she had some overactivity on the part of the thyroid which involuted to the stage of myxedema with resultant menorrhagia and bleeding of nine weeks' duration.

We must consider thrombopenic purpura. We see a great many cases where profuse vaginal hemorrhage is the first symptom and often the chief symptom of the disease. The amount of blood lost has obviously been great because, although bed rest for four months improved her condition somewhat, she still tired easily on exertion.

She may have had an inherited tendency toward tuberculosis, if there is such a thing, and she certainly had intimate exposure to a husband with tuberculosis. Tuberculosis of the endometrium might conceivably give this picture. It is usually accompanied by tuberculosis of the tubes and one rather associates amenorrhea with it rather than profuse vaginal bleeding, although this can occur.

From the physical examination we have evidence of past bleeding as shown by pale mucous membranes and sallow complexion and evidence of present bleeding from the history and discharge of blood over the vulva. Another important finding is a mass, freely movable, and hard, occupying the left lower quadrant. We do not know the relation of the mass to the uterus, which would be of extreme importance to us in making a diagnosis.

We have then the presence of a unilateral mass together with the history, physical findings, and laboratory confirmation of vaginal

bleeding in a woman of thirty two years. We do not know the relation of this mass to the uterus. It has not been distinguished in the physical examination. One thinks immediately of a pedunculated fibroid rising out of the pelvis or a broad ligament fibroid. If it were a fibroid one would expect a more varied group of symptoms than simply vaginal bleeding, either symptoms of pressure, urinary frequency from pressure on the bladder, pain down the leg, or continued backache. The only symptom we have is that of profuse bleeding. The amount of bleeding in fibroids will vary enormously and has very little relation to size. You may have an enormous one and have no marked bleeding, possibly a somewhat prolonged menstrual duration, menorrhagia, but not the amount of bleeding that is evident here. This sort of bleeding we may expect to get with a smaller submucous fibroid. The pedunculated intrauterine fibroid is supposed to be the one benign condition that will give the gushing type of vaginal bleeding and this patient obviously has bled considerably.

We must consider an inflammatory basis for the tumor mass. What we have to go on is the temperature and low white blood count in the laboratory examination. We assume then that there is no evidence of recent infection. Many of the old pelvic inflammatory processes can be hard and firm but usually we find them in older women and we would expect a great deal more fixation in the pelvis than is shown here. There is no note of a rectal examination. It would be interesting to know what it felt like on rectal examination.

We have a history of tuberculosis. There is the inherited tendency and direct exposure. Conceivably this might be a mass of adherent bowel or a mass of omentum. The presenting symptom however is that of hemorrhage rather than of amenorrhea.

Endometriosis ought to be considered but is probably ruled out on the same basis that we rule out pelvic inflammatory disease in that there was no fixation in the pelvis itself.

We come down then to the possibility of an ovarian tumor. Any ovarian tumor will give rise to the symptoms of profuse vaginal bleeding either because of secretion from the tumor itself or from the irritation. Ovarian tumors are very apt to give profuse vaginal bleeding. Because this mass is firm and hard and not fixed in the pelvis, one narrows the search down to the possibility involved in solid tumors of the ovary. Most ovarian cysts will fluctuate on palpation at some point either by rectal, pelvic or abdominal examination. This apparently was a firm hard tumor and we may assume then that the tumor was a solid tumor of the ovary rather than a tumor such as a pseudomucinous cyst. Among the benign tumors of the ovary we come down to the fibromas and in this type of tumor the

bleeding may be normal, but one also may have profuse bleeding. Usually pain is present. Very commonly the pain is that of the pressure type, urinary symptoms associated with it are fairly common. In the cases we have had here three or four have had ascites and two or three fluid in the chest along with it. No mention is made in the physical examination of these findings. There is one type of tumor which is a far cry but it is reported. It is the type of fibroma called Brenner's tumor and has the gross appearance of fibroma on cut section. Theoretically it is malignant but actually benign. There are very few benign solid tumors. Among the malignant tumors is sarcoma which is rapidly growing and we find metastases in the chest so rapidly that we do not have to make the diagnosis—someone else makes it for us, usually the pathologist. The solid types of carcinomas usually have fluid and are usually fixed. There is no evidence of fixation here. They may metastasize in the vagina, and there is no evidence of that. I rather think this is not the case. You may have a solid dermoid. They are very frequently associated with disturbance in menstrual function, very frequently twisted, and pain is the common accompaniment. They usually pit on pressure, either by pelvic or rectal examination, but the ones that do not pit and are solid are most malignant. I do not believe this tumor is a dermoid. Then there is the Krukenberg tumor and that usually has gastrointestinal symptoms associated. There is no history of any gastrointestinal symptom. There is one rare type of ovarian tumor I should like to mention, the granulosa cell type. We have seen one here recently. We have been on the lookout for them and it is the only one I have run across. It is consistent with this picture. Usually the diagnosis is made on the symptom of either a persistence of the rhythmic bleeding or recurrence of rhythmic bleeding past the menopause and when we find such a story in association with hyperplasia on curettage we feel perfectly definite that we are dealing with a granulosa cell carcinoma of the ovary. They are benign but may become malignant. They are usually hard and solid. This recent case was sixty seven years old but curiously enough all the cases we have had in this hospital have been of people in the active menstrual age. The ones at the Free Hospital have all been past the menopause rather than during the period of active menstrual life.

Coming down to the question of diagnosis, our only certain fact is a hard unilateral tumor which is associated with excessive bleeding. I do not know the distinction between the uterus and the mass. I believe it is probably a benign neoplastic lesion. I cannot attempt to make the pathologic diagnosis and about the only things I can seriously consider are either a solid tumor

of the ovary or possibly a pedunculated fibroid I would be delighted if it were granulosa cell tumor simply because we have been looking so long for one

CLINICAL DISCUSSION

DR. TRACY B. MALLORY: Dr. Vincent, you operated on this patient. Will you tell us about your findings?

DR. BETH VINCENT: I think it must have been a number of years ago. I do not remember any of the details. I will have to refer you to my description made at that time.

"A solid tumor of the left ovary the size of a baseball. The right ovary showed no evidence of disease. The tubes were negative and the uterus was of normal size and consistency and contained no evident fibroids. The peritoneum of the pelvis was normal. The left ovarian tumor was first removed and incised for examination. The cut surface was suggestive of malignancy so it was decided to remove the other ovary and do a hysterectomy on account of the excessive bleeding. A normal appendix was removed."

DR. MALLORY: At the time it was removed, nine years ago, it was diagnosed as an adenocarcinoma of the ovary. Three years ago when Dr. Meigs was reviewing all the gynecological pathology that we have had for the past twenty years he was able to separate out this tumor very easily as a typical granulosa cell carcinoma.

PREOPERATIVE DIAGNOSES

Menorrhagia
Fibroid of the uterus

DR. LANGDON PARSONS' DIAGNOSES

Tumor of the ovary, non-cystic
? Granulosa cell carcinoma.
Pedunculated fibroid of the uterus

PATHOLOGIC DIAGNOSIS

Granulosa cell carcinoma

DR. JOE V. MEIGS: We found in reexamining the tumors of the ovary at the Massachusetts General Hospital that we had seven granulosa cell tumors, all of them were under the age of the menopause. These tumors are all quite characteristic looking, usually solid and firm, but sometimes with cystic areas. They are almost always accompanied by abnormal uterine bleeding, either profuse before the menopause or recurrent after the menopause. They probably arise from primitive sex cells which are left behind in the hilum of the ovary. Some believe they come from the granulosa cell of the graafian follicle. Robert Myer does not believe they come from the follicle because after the menopause the granulosa cells disintegrate and are not active, and he also believes that

the ovum is necessary for continued activity of the granulosa cell. Microscopically the tumors grow in follicular, tubular, sarcomatous form or in a pattern form, called after möré silk. Some resemble cellular fibromata. These probably arise from primitive theca producing cells. A recent case operated upon by Dr. Parsons that Dr. Mallory has been studying is possibly of that type. The patient was sixty-seven and had recurrent bleeding upon which radium had no effect. She was operated on and a tumor of the ovary of the cellular-fibroma type was found, a possible thecoma. I have been hoping to operate on a patient with a granulosa cell tumor but have never been fortunate enough.

DR. MALLORY: How malignant are they?

DR. MEIGS: These tumors are supposed to be benign but Novak's recent paper and our own experience show that about half of them are quite malignant.

DR. MALLORY: How frequently is the other ovary involved?

DR. MEIGS: It is usually a unilateral tumor.

CASE 21192

PRESENTATION OF CASE

A seventy-year-old Irish nightwatchman entered for the fourth time in 1934. His three previous admissions were in 1900, 1920 and 1928 for conditions unrelated to his present admission. Two of these previous admissions were for varicose veins and the third for fractures of the scapula, ribs and terminal phalanx.

One year before entry the patient noted painless swelling of the ankles and feet. Two weeks before admission he caught cold and began to notice difficulty in breathing, especially marked on exertion. Expiration was more difficult than inspiration. He also had attacks of coughing with the production of a small amount of white sputum. During the week before admission he was forced to sleep sitting up. There had been no increase in the swelling of his ankles. He developed weakness and loss of appetite. Four days before entry his dyspnea became so marked that it prevented him from walking. He remained at home and spent most of his time in bed. A physician called his condition asthma and gave him capsules to take every hour. He also prescribed a liquid which helped the cough. No cyanosis had been noted. On the day of admission he experienced slight pain in the left side of his chest. There was no history of asthma before his present illness.

His family and marital histories are non-contributory.

He had been a heavy drinker of alcohol. He had frequent colds during the winter.

Physical examination showed a short, obese man sitting up in bed, breathing with great dif-

scanty and with audible asthmatic wheezes. The face, hands and feet were cyanotic. The pupils were small, equal and did not react to light. The breath was fetid. The tongue was coated. The chest was barrel shaped with practically no thoracic movement. There were many squeaks and groans throughout the lungs especially during expiration. There was very little inspiratory moisture. The diaphragms were low in position. The heart was enlarged, the left border of dullness being 11.5 centimeters in the midsternal line. The rhythm was regular, the sounds were of fair quality. There were no murmurs or thrills. The blood pressure was 180/105 with some alternation of pulse. The abdomen was pendulous. The lower legs were very blue and showed many dilated veins and scars of previous operations. There was some edema of the legs and considerable dry flaky eczema.

The temperature was 98°, the pulse 78. The respirations were 20.

The urine was negative. The red blood cell count was 5,100,000, with a hemoglobin of 75 per cent. The white cell count was 10,200 with 74 per cent polymorphonuclears, 18 per cent lymphocytes, 5 per cent large mononuclears and 3 per cent eosinophils. A Hinton test was negative. The nonprotein nitrogen of the blood was 38 milligrams.

While in the Emergency Ward he was venesected of 500 cubic centimeters. He was put on digitalis. Another venesection was performed on the day following admission with only slight relief. He was given ten grains of caffeine sodium benzoate and ten minims of adrenalin subcutaneously. The cyanosis was greatly improved. Relief however, was only temporary. His condition became worse his respirations became more and more difficult and he died on the fourth day.

DIFFERENTIAL DIAGNOSIS

DR. F. DENNETTE ADAMS. The differential diagnosis in this case is not easy. The history, which in the main is consistent with acute or chronic bronchopulmonary disease or with myocardial disease, provides few important clues which might aid in swinging the balance toward one or the other. If he actually had a true cold at the onset—and the statement to this effect can justifiably be discounted, especially in June, because so many individuals call almost any respiratory symptom a cold—if carefully taken past history revealed cough profuse sputum and gradually increasing dyspnea on exertion over a period of years we would have some definite evidence in favor of chronic bronchitis and emphysema with possibly bronchiectasis, but with no such facts at hand one can not exclude cardiac failure with so-called cardiac asthma. Is there any history of previous cough and sputum through the years?

DR. TRACY B. MALLORY. No. The patient was very sick and it was difficult to get an extensive history but it is emphatically said that he had no chronic cough. The onset of his illness, which he referred to as a cold was described as consisting of headache at first, a feeling of being "choked up in his chest", a sudden onset of cough at that time and no nasal symptoms at all.

DR. ADAMS. No conclusions can be drawn from the statement concerning pain in the left chest. Without a more complete description, which the patient was doubtless too sick to give, it is impossible to differentiate several conditions, among them angina, a torn pleural adhesion, or a ligamentous strain brought on by spasmodic cough. Edema of the legs in a patient with varicose veins is of no value as evidence of cardiac failure.

The physical examination on the whole, seems to provide more factors in favor of a pulmonary than a cardiac condition. The description of his general condition the type of respiration and of the breath sounds are characteristic of an asthmatic attack, but this was more severe and prolonged than one generally sees in cardiac asthma. On the other hand, because of the undoubted inflated condition of the lungs the heart might be larger than the measurements indicated, the alternating pulse suggests a cardiac factor, and the present blood pressure reading is not necessarily a true index, for it might once have been higher, in which case the present figure would indicate weakening of the myocardium. With cardiac failure, although a pulse of 78 is not impossible one would expect it to be higher, and congestion at the bases should be indicated by moist râles over those areas. Absence of murmurs in the heart is surprising. In a man with arteriosclerosis and hypertrophy one would expect systolic murmurs at the base and at the apex, but these could readily be overlooked because of the noisy respiration. Their demonstration, however would add no important evidence. The temperature of 98° is of no significance unless taken by rectum in a patient with severe dyspnea. If this observation is correct we have an important bit of evidence against acute pulmonary infection.

DR. MALLORY. When they began to take rectal temperatures they ranged from 100° to 101°.

DR. ADAMS. Then we have not excluded pulmonary infection.

The pupillary findings are unimportant, the patient probably had had morphine.

One can assume I suppose in accepting the report of a negative urine that there was no fixation of gravity—an important point if chronic nephritis with cardiac failure is to be excluded.

DR. MALLORY. Two urine specimens were taken. The specific gravities were 1.014 and 1.020.

DR. ADAMS Certainly no fixation

The treatment given the patient in the Emergency Ward would seem to indicate that his symptoms were first thought to be due to cardiac failure. Later, however, adrenalin was tried, and its administration was apparently attended with more relief than that afforded by the previous measures.

DR. MALLORY Adrenalin was given on many occasions, apparently with slight transient relief each time.

DR. ADAMS Benefit from this drug, of course, is most often obtained in the true asthma cases, but it can be helpful in the cardiac asthmas. Failure of venesection to afford relief is, generally speaking, not consistent with a diagnosis of cardiac asthma.

The differential, as indicated above, lies between bronchopulmonary or cardiovascular disease. Is this true bronchial asthma, cardiac asthma or an asthmatic attack based on acute exacerbation of a chronic bronchitis? The weight of evidence, it seems to me, is in favor of the latter. There are no clear-cut symptoms or signs of cardiac failure. Bronchial asthma coming on for the first time, and so severely, at the age of seventy is most unlikely. On the other hand, with fever, slight leukocytosis, some evidence of infection, it is not unreasonable to assume that with the history of frequent winter colds we are dealing with a case of acute infection superimposed on old chronic bronchitis, with probably emphysema and bronchiectasis.

A PHYSICIAN Is it not a rather short history for pulmonary disease?

DR. ADAMS A rather inadequate history was obtained. The patient is a seventy year old man who admits frequent colds and who could well have had bronchitis for years, although Dr. Mallory's statement that he had not had chronic cough is decidedly against this.

A PHYSICIAN Would you not expect more urinary findings with congestive heart failure?

DR. ADAMS Yes. One would, of course, expect some albumin and a few casts based on congestion.

A PHYSICIAN Is adrenalin of any benefit in cardiac asthmas?

DR. ADAMS It occasionally is helpful, but we get farther with morphia and venesection. Dr. White states that cardiac asthma is based on left ventricular failure with backing up of blood in the pulmonary system, consequent increased pressure in this circuit and reflex bronchial spasm producing asthmatic breathing. The classic signs of such failure are pulmonary congestion with or without cardiac asthma, gallop rhythm with or without alternation, and a relative increase in second pulmonary sound.

CLINICAL DIAGNOSES

Hypertensive heart disease
Cardiac failure
? Pulmonary emphysema

DR. F. DENNETTE ADAMS' DIAGNOSES

Chronic bronchitis and emphysema with probable bronchiectasis
Acute terminal bronchitis with probable low grade bronchopneumonia.
Arteriosclerosis
Hypertrophy of the heart
Arteriosclerotic and hypertensive heart disease

ANATOMIC DIAGNOSES

Bronchial asthma
Cardiac hypertrophy, hypertensive type.
Arteriosclerosis, aortic, coronary and aortic valve
Pleuritis, chronic
Obesity

PATHOLOGIC DISCUSSION

DR. MALLORY The most interesting part of the differential diagnosis in this case is the question of cardiac asthma or bronchial asthma. When the patient first came into the hospital the men in the Emergency Ward were convinced it was cardiac asthma. They venesected him twice and then gave him adrenalin repeatedly. The venesection gave no relief, the adrenalin very little.

At autopsy the lungs were ballooned up over the heart. They did not collapse on removal and weighed no more than normal lungs. The alveoli were absolutely dry and every bronchus was filled with pus and mucus. Of course the patient did have hypertensive heart disease as well. The heart weighed over six hundred grams. The coronaries showed only scattered atheromatous plaques without narrowing. The aortic valve showed some calcification of the cusps but no significant stenosis. There was absolutely no autopsy evidence of heart failure. The heart was not dilated, the lungs were neither congested nor edematous. I personally can not conceive of left ventricular failure with pale dry lungs. The question arises as to how often we get bronchial asthmas superimposed on cardiac disease. At least this seems to be true of the cases which die in the attack and consequently reach the pathologist. The clinical and physiologic evidence of Weiss and others that typical cardiac asthma consists of sudden left ventricular failure and consequent paroxysmal pulmonary congestion and edema is to my mind incontrovertible, and an occasional case dying in

the paroxysm gives morphologic support to the theory. Usually, however, death is delayed until the patient has recovered from the attack. When a cardiac patient actually dies with paroxysmal dyspnea, as this one did, my experience is that usually the anatomic findings will be characteristic of bronchial asthma, not of cardiac asthma.

One is not justified in assuming that every asthmatic attack in a cardiac patient is "cardiac asthma." I am also firmly convinced that bronchial asthma can never be safely ruled out on the score of age.

A PHYSICIAN Was there no bronchopneumonia?

DR. MALLORY Not a trace.

DR. ADAMS Was there no bronchiectasis?

DR. MALLORY No

A PHYSICIAN Was there any emphysema?

DR. MALLORY No, none at all. All the alveoli were distended but not beyond the physiologic limit of full inspiration.

A PHYSICIAN What about the barrel chest?

DR. MALLORY Anyone in the midst of an asthmatic attack has a barrel shaped chest.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

COMMITTEE ON PUBLICATIONS

R. I. LEE M.D. Chairman HOMER GAGE M.D.
R. B. OSGOOD M.D. R. M. SMITH M.D.
F. H. LAHEY M.D.

EDITORIAL STAFF

RED HUNT M.D. STEPHEN RUSHMORE M.D.
JOHN P. SUTHERLAND M.D. HANS ZINSSER, M.D.
GEORGE R. MINOT M.D. BENJAMIN WHITE, PH.D.
FRANK H. LAHEY M.D. HENRY R. VIETS M.D.
SHIELDS WARREN M.D. ROBERT N. NYE, M.D.
GEORGE L. TOBEY JR. M.D. ROBERT M. GREEN M.D.
C. GUY LANE, M.D. CHARLES C. LUND M.D.
WILLIAM A. ROGERS M.D.

WALTER P. BOWERS M.D. Managing Editor

ASSOCIATE EDITORS

GEORGE G. SMITH M.D. WILLIAM B. BREED M.D.
JOSEPH GARLAND M.D.

THE NEW HAMPSHIRE MEDICAL SOCIETY PUBLICATION COMMITTEE

CARLETON R. METCALF M.D. HENRY H. AMSDEN M.D.
WARREN H. BUTTERFIELD M.D.

THE VERMONT STATE MEDICAL SOCIETY PUBLICATION COMMITTEE

WILLIAM G. RICKER M.D. C. F. DALTON M.D.
L. H. ROSS M.D.

SUBSCRIPTION TERMS \$6.00 per year in advance postage paid
for the United States, Canada \$7.04 per year \$8.52 per year
for all foreign countries belonging to the Postal Union

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office 8 Fenway

The Journal does not hold itself responsible for statements
made by any contributor

Communications should be addressed to The New England
Journal of Medicine, 8 Fenway, Boston, Mass.

HYPERTENSION AND PITUITARY BASOPHILISM

ONE of the striking characteristics of the syndrome of pituitary basophilism, recently described by Harvey Cushing, is vascular hypertension. In his earlier description of the condition he suggested that inasmuch as hypertension is such a constant feature of the syndrome, the reverse might be true. In other words do patients with hypertension present other clinical evidence of basophilism? As no satisfactory explanation of the underlying basis of hypertensive states is evident, any fresh approach to this problem is distinctly welcome.

Recently Dr. Leona Baumgartner made an investigation of thirteen patients with severe hypertension for signs of pituitary dysfunction*. She reports that many of her patients, most of them young individuals with a minimum amount of arteriosclerosis or renal involvement,

showed some of the characteristic features of the Cushing syndrome. Ten, for instance, were definitely obese and four showed typical concentration of adiposity in the face, neck and trunk, five more gave a history of sudden increases in weight comparable with those found in Cushing's descriptions. All the patients were more or less plethoric, but none of the characteristic purplish striae were seen. Eight of the thirteen had erythrocyte counts over 5,000,000 and three of the eight women examined had polytrichosis. On the other hand, striking sexual dystrophies, evidence of osteoporosis, and increased intracranial pressure were absent. More important, however, were the pathological findings in the pituitary body when examined carefully by serial section. In two cases a small basophilic adenoma was found in the anterior lobe, associated with infiltrations of the posterior lobe with basophilic cells in one case and a normal posterior lobe in the other.

Although the series of cases examined was small and a careful examination of the pituitary body was not made in all the fatal cases, this report is highly suggestive of some relationship between the basophilic cells of the pituitary and hypertensive states. The theory of a pituitary factor in hypertension is, therefore, of sufficient interest to warrant further investigation.

NEW YORK'S NEW METHODS IN THE CONTROL OF DIPHTHERIA AND DIABETES

THE New York City Department of Health has adopted a new procedure in the administrative control of diphtheria, in order that every effort may be made not to impose unnecessary hardships on harmless carriers of non-virulent bacilli. To meet this situation, the Department has changed its procedure and has introduced the term "*presumptive* diphtheria carrier" to define a person who

(1) harbors diphtheria-like bacilli but gives no history of a recent sore throat or nasal discharge, or who,

(2) harbors diphtheria-like bacilli but has not been in contact with a recent case of diphtheria.

These presumptive carriers are listed and visited, but are not quarantined, they are, however, excluded from school and from leaving the city until a virulence test has been reported. On the basis of this test the presumptive carrier is then classified either as a diphtheria carrier or as "no case," in which event his name is dropped from the files. Under this procedure a "diphtheria carrier" is one who has not had a recent sore throat or nasal discharge, but who harbors virulent Klebs-Loeffler bacilli or is a

*Baumgartner, Leona. Pituitary Basophilism and Hypertension. The Yale Journal of Biology and Medicine 7:327-354 March 1935.

contact to a recent case of diphtheria who has a positive culture. Such carriers are visited, isolated and the premises quarantined.

While the new procedure throws more work on the laboratory of the health department, it is expected to result in reducing the annoyance caused by the persistence of non virulent diphtheria like bacilli in nose and throat cultures.

The same quarterly bulletin of the Department of Health announces the organization of a special group to deal with diabetes as recommended by a special committee of the Academy of Medicine and made possible by the generosity of Mr Lucius N. Littauer.

The tentative objectives of this organization are

To act as a clearing house for the study of diabetes as a health problem, and to devise measures for the control of this disease.

To assist in the formation of a committee of clinics dealing with diabetes.

To stimulate more effective cooperation between clinics and hospitals in the treatment of diabetes.

To develop more extensive and more continuous graduate courses of instruction for physicians.

To carry on health education of the public in all matters pertaining to diabetes.

To assist in the preparation of exhibit material which can be used in the instruction of diabetics attending clinics.

To attempt a solution of the problem of providing insulin to the indigent.

To study the needs of the various parts of the city to the end that adequate facilities for diagnosis and treatment may be generally available.

To extend our knowledge of diabetes by the interchange of views at suitable meetings.

To train groups of nurses, as is so usefully done by Joslin, in the special nursing of diabetics.

Diabetes might ordinarily be defined as a private health rather than a public health problem but this new venture may be interpreted as a sign of changing times.

The Massachusetts Medical Society

SECTION OF RADIOLOGY AND PHYSIOTHERAPY

The program of the Section of Radiology and Physiotherapy, this year, is one of exceptional interest not only to those specializing in these fields, but to the general practitioner as well.

Dr Edward C. Vogt has been able as a result of studious observation, to procure x-ray films of very early phases of congenital hip joint disease in children brought to the Infants' and Children's Hospitals in Boston frequently for some entirely different ailment. Earlier recognition of this disabling condition makes possible

earlier treatment with greatly improved end results. This is another long step forward, in medicine, for which the x-ray is our benefactor.

Improved apparatus and technique have made possible new advances in radiography. Dr John R. Carthy, of Cornell Clinic, New York City, brings to us first hand information of his most interesting and valuable work with soft tissue tumors, infections, trauma of muscles and tendons, and the vascular system in health and disease. Future possibilities as well as present attainments should make such a paper of unusual interest to physicians in general.

In the field of Physical Therapy, new types of apparatus are continually appearing, many of which have little to commend their existence. Rarely is a piece of apparatus qualified to make its debut. The testing is too often left to the purchaser. One of these new and thoroughly advertised apparatus is the "short wave" or "radiotherm." For years, that type of high frequency current known as "diathermy" has been a real help in the treatment of a few definite conditions. The wavelength of its current is approximately 300 meters. Now, physicians in nearly every field of work are urged to purchase a "short wave diatherm" or "radiotherm" with wavelengths varying from 3 to 30 meters. Because of the limited clinical knowledge of this "short-wave" current, and a desire to acquaint the physicians generally with what is known of it for good or ill, an important part of the program is to be devoted to this form of treatment. Professor Chaffee, of Harvard, will present the physicists' viewpoint of this type of current, with his profound knowledge of its fundamental possibilities. Dr William Bierman brings the results of his own diligent work and that of other highly reputable fellow clinicians.

The following is an outline of the program:
"Infantile Phases of Congenital Hips." Edward C. Vogt, M.D., Boston.

"The Physics of the High Frequency Currents as Used in Medicine—Diatherm, Radiotherm, and Electric Knife." Professor E. Leon Chaffee, Harvard University.

"Fever and Short Wave Radiations." William Bierman, M.D., New York.

"Diagnostic Possibilities of Soft Tissue Radiography." John R. Carthy, M.D., New York.

UNDULANT FEVER

In addition to the cases of undulant fever reported in the issue of May 2 by Doctors Sidel and Segal a personal letter from Doctor Sidel reports another case in the person of a surgeon who while on a speaking tour in Florida drank unpasteurized milk and is now ill with the disease.

The points made in the paper that this infection is much more prevalent than is generally recognized, should impress practitioners with the importance of a correct diagnosis in all cases.

of continued fever which do not fit into the semiology of more easily recognized illnesses

There seems to be an impression that undulant fever is especially a tropical disease, but a considerable number of cases have been reported in the temperate regions from time to time. The arguments against the drinking of unpasteurized milk are growing stronger with the addition of another serious disease to the list of those due to untreated milk

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

LAHEY, FRANK H. M.D. Harvard University Medical School 1904 F.A.C.S. Director of Surgery, The Lahey Clinic, Boston. Surgeon-in-Chief, New England Baptist Hospital. Surgeon, New England Deaconess Hospital. Address 605 Commonwealth Avenue, Boston, Mass. Associated with him are

SWINTON, NEIL W. M.D. University of Michigan Medical School 1929. Surgical Fellow, Lahey Clinic. Address 605 Commonwealth Avenue, Boston, Mass. And

PEELEN, MATTHEW A.B., M.D. Rush Medical College 1931. Formerly interne at the Harper Hospital and Children's Hospital, Detroit, Mich. Fellow in Surgery, Lahey Clinic, Boston, Mass. Address 605 Commonwealth Avenue, Boston, Mass. Their subject is "Cancer of the Stomach" Page 863

MATZ, PHILIP B. M.D. Long Island College of Medicine 1908. Chief, Research Subdivision, Medical and Hospital Service, Veterans' Administration, Washington, D.C. His subject is "A Study of Heart Disease Among Veterans. I. Clinical Classification of Five Hundred Cases" Page 868. Address Arlington Building, Washington, D.C.

SEARS, JOHN B. A.B., M.D. Harvard University Medical School 1927. Assistant in Surgery, Massachusetts General Hospital and Beth Israel Hospital. Assistant in Surgery, Harvard Medical School and Tufts College Medical School. Surgeon to the Peripheral Vascular Clinic at Beth Israel Hospital. His subject is "Embolism from Saphenous Thrombophlebitis and its Prophylaxis", Page 874. Address 475 Commonwealth Avenue, Boston, Mass.

FULLEPTON, WALTER W. M.D. College of Physicians and Surgeons of Baltimore 1895. City Physician, Brockton, Mass. 1900-1902 inc., Associate Medical Examiner 1919-1926, Medical Examiner 1926-1933, First Plymouth District, Massachusetts. Now, School Inspector, Brockton, Mass. His subject is "Skeleton of an Unknown Person." Page 876. Address 106 Main Street, Brockton, Mass.

CHEEVER, AUSTIN W. A.B., M.D. Harvard University Medical School, 1914. Assistant Physician to Syphilis Out-Patient Department, Massachusetts General Hospital. Consulting Dermatologist, Massachusetts Eye and Ear Infirmary. Assistant in Dermatology and Syphilis, Harvard Medical School. His subject is "Progress in the Diagnosis and Treatment of Syphilis, 1934" Page 882. Address 41 Bay State Road, Boston, Mass.

The Massachusetts Medical Society

CORRECTION IN SOCIAL CALENDAR

The Social Calendar which was included with the advance program of the Annual Meeting of the Massachusetts Medical Society contained an error

The lunch at Concord Country Club was listed with Tuesday events. This lunch is scheduled for Wednesday at 12:30 as part of the Concord trip (Event No. 4)

MRS. WILLIAM H. ROBEX,
Chairman of the Committee in Charge

SECTION OF OBSTETRICS AND GYNECOLOGY*

THOMAS ALMY, M.D.,
Chairman,
140 Rock Street,
Fall River, Mass.

C. J. KICKHAM, M.D.,
Secretary,
524 Commonwealth Avenue,
Boston, Mass.

ETIOLOGY AND TREATMENT OF POSTPARTUM PHLEBITIS

DUE to the considerable work that has been done in recent years on the cause of thrombosis and phlebitis, medical opinion is leaning more definitely toward the belief that infection of the wall of the vein is the prime factor in the etiology of puerperal thrombosis and phlebitis. However, there is a large class of cases in which the source of the infection cannot be demonstrated and in many of these, the phlebitis appears to be a result of stasis of the blood stream, e.g., from pressure at the time of delivery, and the term "traumatic phlebitis" is also found in the literature.

When an infectious etiology can be demonstrated, the type of invading organism is practically unlimited. The list includes all the varieties of Staphylococcus and Streptococcus, hemolytic and non-hemolytic, aerobic and anaerobic and runs down through numerous other cocci and bacilli both unidentified and identified.

Perhaps it might be well to state at this point, that in this paper, we are not including pelvic thrombophlebitis. This, of course, is a definite

*A series of short selected articles by members of the Section will be published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the Section.

and important form of postpartum phlebitis, but it is so closely linked with puerperal sepsis that we felt a discussion of that condition would be unwarranted by the title of this paper and would lead us into a labyrinth of fact, fiction and fancy

There is, however, a definite form of phlebitis which starts as a pelvic thrombophlebitis and does not remain localized but extends directly to the femoral vein via the external iliac. In this case the thrombosed vein may be felt as a firm, tender cord in Scarpa's triangle. The lymphatic system is nearly always involved to a greater or less extent in this inflammation. This plays an important part in the production of the swelling and edema which may appear in the groin and gradually extend downward or begun at the ankle and proceed upward. If the lymphatic involvement occupies the centre of the picture we have a typical "phlegmasia alba dolens puerperium" or "milk leg"

There is another type of phlebitis in which the swelling and inflammation take place in an old varicosity and seem to have no connection with Scarpa's triangle or the pelvic veins. Such a case was formerly regarded as one of so-called "simple thrombosis" resulting from stasis of the blood stream from inaction, or pressure changes in the veins following delivery and prolonged stay in bed, or increased coagulability of the blood. Certainly it cannot be denied by the proponents of the "infectious" theory that in most of these cases the source of infection would be difficult if not impossible to demonstrate

Treatment

- 1 McPheeters recommends the injection of varicose veins if the patient comes in to you before the sixth month of pregnancy
- 2 Proper precautions should be taken to guard against the possibility of infection or trauma during labor, delivery or the puerperium
- 3 Early activity for the postpartum patient is advocated by many
- 4 In the presence of the condition itself, "Rest, Ice and Elevation" is a classical phrase that has been handed down for many years from teacher to student. It is a conservative, oftentimes lengthy, expensive but effective treatment. It does not, however, remove the danger of that serious complication, embolism
- 5 Of recent years in cases of phlebitis apparently limited to a small portion of the saphenous vein or of a varicose vein, considerable success has been attained by the use of sclerosing injections or by ligation proximal to the site of the phlebitis. The rationale of this treatment lies in the at-

tempt to limit extension of the process by closing the lumen of the vein proximal to the phlebitis.

- 6 In foreign journals, we encounter references to the use of infra roentgen rays in the treatment of varicophlebitis and to a solution of sodium citrate and arsphenamine. Recently two American workers have demonstrated that peroral calcium therapy accelerates the rate of disappearance of acute thrombophlebitic edema but we have personally had no experience with these types of treatment.

SECOND ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the Committee for the week beginning May 18

Bristol South (New Bedford Section)

Friday May 17 at 4 00 P.M. at the St. Luke's Hospital New Bedford. Subject Obstetrics and Gynecology (Second Session) Harold E Perry M.D. Chairman.

Hampshire

Wednesday May 15 at 4 15 P.M., in the Nurses Home of the Cooley Dickinson Hospital Northampton. Subject Cardiovascular Disease (Second Session) Robert B Brigham M.D., Chairman.

Norfolk (Norwood Section)

Friday May 17 at 8 30 P.M., at the Norwood Hospital Norwood. Subject Cardiovascular Disease (Second Session) Hugo B C Riemer M.D. Chairman

Worcester (Milford Section)

Thursday May 16 at 8 00 P.M., at the Milford Hospital Milford Subject Cardiovascular Disease (First Session) Joseph I Ashkins M.D., Sub-Chairman.

Worcester (Worcester Section)

Wednesday May 15 at 7 30 P.M., in the Nurses Home of the Worcester City Hospital Worcester Subject Cardiovascular Disease (Third Session) Erwin C. Miller M.D., Chairman.

MASSACHUSETTS LEGISLATIVE NOTE

House Bill 756

The report of the Committee on Education of the Massachusetts Legislature on House Bill 756 has been filed in the Senate, "leave to withdraw and concurrence followed in the House"

This is the bill as defined in the petition of the Massachusetts Medical Society "for legislation relative to the qualifications of applicants for registration as physicians"

An effort was made to have a committee of the legislature appointed to investigate the conditions

relating to this subject. The Committee on Education did not respond favorably to this request of the petitioners

The Committee on Legislation of the Massachusetts Medical Society, however, succeeded in having a substitute bill passed in the House before the final action, providing for an investigation of the whole subject under House 2054, the text of which is as follows "Resolved, That an unpaid special commission to consist of one member of the Senate to be designated by the president thereof, three members of the House of Representatives to be designated by the speaker thereof, the Commissioner of Education, the Commissioner of Public Health, the Chairman of the Board of Registration in Medicine, the Dean of the Harvard Medical School or any person designated by him, the Dean of the Tufts Medical School, or any person designated by him, the Dean of the Boston University Medical School or any person designated by him, the Dean of Middlesex College or any person designated by him, the Dean of College of Physicians and Surgeons or any person designated by him, the Dean of the Massachusetts College of Osteopathy or any person designated by him, and two persons to be appointed by the Governor, is hereby established to study the question of medical educational conditions in the commonwealth, including the subject matter of the current House Document No 756

"Said commission, in the course of its study, shall consider the effect of medical education in the commonwealth upon the health and lives of the citizens

"Said commission shall be provided with quarters in the State House or elsewhere, and for the purpose of this resolve may expend such sums not exceeding in the aggregate, fifteen hundred dollars, as may hereafter be appropriated

"Said commission shall report to the General Court the results of its study, together with its recommendations and drafts of legislation necessary to carry the same into effect, by filing the same with the clerk of the House of Representatives no later than the first Wednesday of December in the current year"

This will have to go through the usual procedure of reference to a committee and the Senate

The situation now provides opportunities for further activities designed to show the Representatives the importance and advisability of approval of the wishes of the Massachusetts Medical Society

MISCELLANY

DR. HOFFMAN RETIRES

Dr Frederick L Hoffman, consulting statistician of the Prudential Life Insurance Company, has resigned after forty-two years with this organization. The investigations by Dr Hoffman have covered the larger causes of death of human beings and his statistics have been informative and especially useful. His ability to present facts in a convincing way has added to the influence of his publications

DIPHTHERIA DRIVE IN BOSTON

Recommendation for immunization against diphtheria was presented May 1, to more than one thousand mothers in the eight city health centres by doctors under the Boston Health Department

These meetings were arranged by Dr Charles F Willinsky, deputy health commissioner. One of the addresses was in Italian in a section where there are many families of that nationality

This is a continuation of the crusade started in Boston in 1922

A RESOLUTION RESPECTING MEDICAL SERVICE

ANNOUNCEMENT

The Committee on Interstate Cooperation of the National University Extension Association has announced the national debate proposition for next year. It is as follows

Resolved That the Several States Should Enact Legislation Providing for a System of Complete Medical Service Available to All Citizens at Public Expense

The choosing of the proposition by the national committee means that it will be debated by more than 100,000 students in the high schools, colleges, and universities throughout the nation. The debates will be heard by large and small audiences, in auditoriums and over the radio. Past experience has demonstrated that public interest generally will be stimulated

In order to provide students with adequate materials for the study of the proposition, the Committee is devoting the eighth annual Debate Handbook to the field of medical economics. The editor of the volume is Mr Bower Aly, of the Department of English, the University of Missouri. It is the function of the editor to secure contributions and to select reprint material which will reflect current medical and lay opinion. It should be noted that the conventions of debate do not limit the discussion to the actual statement, since the negative may offer counter plans, such as compulsory health insurance, group practice, or annual fee payment.

Persons or organizations interested are invited to write immediately to the editor, or to send him copies of published articles which may be thought suitable for reprint or listing in the bibliography. Address Mr Bower Aly, Room 216 Jesse Hall, the University of Missouri, Columbia, Missouri

A list of institutions cooperating with the Committee on Interstate Cooperation during the past year

The University of Alabama, the University of Arizona, the University of Arkansas, the University of Redlands (Calif.), the University of Colorado, University of Georgia, Indiana University, the State University of Iowa, the University of Kansas, University of Kentucky, Louisiana State University, Bates College (Maine), the University of Michigan, the University of Missouri, the University of Nebraska, the Univer

sity of New Mexico University of North Carolina, the University of North Dakota Ohio State University the University of Oklahoma the University of Pittsburg (Pennsylvania) the University of Tennessee West Virginia University the University of Wisconsin the Idaho High School Declamation and Debate Association the Illinois State High School Music and Literary Association, the Indiana High School Debate League the Minnesota State High School League the Montana Debate League the Oregon High School Debating League the South Dakota High School Debating League the State Department of Education of Washington.

CORRESPONDENCE

DR. BLACKFAN ADVISES A CONSERVATIVE ATTITUDE

Harvard Medical School
Department of Pediatrics

Children's Hospital
300 Longwood Avenue
Boston May 1 1935

Editor *The New England Journal of Medicine*

In an editorial appearing in this *Journal* April 25 1935 entitled "A New Form of Treatment of Meningococcus Meningitis" a brief statement is made calling attention to the recent claims of Ferry concerning the production of meningococcus antitoxin. This is followed by a paragraph which reads as follows: "The new antitoxin has been used clinically at the Cook County Hospital Chicago. Dr. A. L. Hoynes is now able to report on its use in eighty five of two hundred and ninety six cases taken for observation. By the use of this meningococcus antitoxin the death rate has been reduced approximately fifty per cent. Thus we have added to the drugs available in treating this often fatal disease what appears to be a new and important form of therapy."

One of the functions of the *Journal* undoubtedly is to keep practicing physicians informed as to the important advances which are being made in the treatment of diseases. This is especially true in these days when every day witnesses the introduction of an improved vitamin preparation a new vaccine, serum or antitoxin. However the query is raised as to whether emphasis on "new and better preparations" should be given quite so unreservedly and uncritically as is implied by the words "the new antitoxin" appears to be a new and important form of therapy.

The results reported by Hoynes tend to show that the antitoxic serum is effective yet it is interesting to note that in forty of the cases quoted bacteriological diagnosis was not made. The writer is hesitant to accept this type of clinical report. Banks has recently reported on a small group of cases (25) treated with Ferry's antitoxin in England. There were seven deaths in the group. While this series is small nevertheless Banks points out

that the mortality rate is very little better than the standard mortality rate as given by Flexner for patients treated with regular antimeningococcus serum.

It is stated with respect to meningococcus antitoxin in the *Lancet* (April 13 1935) "From the bacteriologist's point of view the position is equally uncertain. In the first place it is not yet clear whether the filtrates of meningococcal broth cultures contain anything other than the products of the very rapid autolysis of the organism. Substances poisonous to guinea pigs on subdural inoculation undoubtedly occur in the filtrates but they also occur in filtrates of other *neisseriae* grown under the same conditions. Secondly the appearance of the poisonous substances in the broth cultures is paralleled by the development of products of bacterial destruction such as precipitogens. Again protection experiments on animals with antitoxic sera provided by Ferry and with antitoxic sera made from English strains of meningococci have not yet confirmed the happy results obtained by the American workers."

The writer of this communication is in complete agreement with the criticism of meningococcus antitoxin as presented in this editorial in the *Lancet* particularly as a number of authoritative bacteriologists in this country have not accepted the experimental evidence submitted by Ferry.

It is hoped that a step in advance has been made in the treatment of meningococcus meningitis but further clinical trial and experimental evidence are needed before meningococcus antitoxin should be accepted as superior to the antimeningococcus serum in present use which has been proved so effective by adequately controlled clinical experience in treating infections due to the meningococcus.

REFERENCES

1. Ferry N. B. and Steele A. H.: Active immunization with meningococcus toxin. *J. A. M. A.* 104:922 (March 23) 1935.
2. Hoynes, Archibald L.: Meningococcus meningitis. A new form of therapy. *J. A. M. A.* 104:920 (March 3) 1935.
3. Banks H. Stanley: Ferry's Meningococcus Antitoxin in Acute Cerebro-spinal Fever. *Lancet*. 238:286 (April 13) 1935.

KENNETH D. BLACKFAN M.D.

THE LIEN BILLS FOR DOCTORS AND HOSPITALS

May 1 1935

Editor *New England Journal of Medicine*,

I am enclosing a copy of a letter from Representative Hays.

In 1933 the Landesman Committee of the Norfolk District Medical Society called upon the different superintendents and directors of insurance companies in Boston (I was alone most of the time at these conferences with them) and at that time almost everyone of them was willing to cooperate with the medical profession in taking care of their bills directly. It was rather unfortunate for us that we did not continue these conferences as I had planned, for I am sure we could have obtained the results or as close to them as possible which we are trying to attain in the Lien law.

becomes at once obvious that coronary disease as it is seen in a general hospital is usually a diffuse process whose effects upon various parts of the cardiac wall lead to complicated electrical variations and that even in acute coronary thrombosis we are not dealing with an isolated picture of heart muscle damage such as sometimes occurs in younger cases coming under the eye of the coroner or medical examiner. But

tricle alone in eight cases, in the apex and lateral wall in one, in the apex and anterior wall in one, in the apex, lateral and posterior walls in one, in the posterior wall in four, in the lateral and posterior wall in one, and in the right ventricle in one. Table 1 shows the correlation between the area of infarct and the electrocardiogram in which the electrocardiogram is called "consistent" when an anterior or apical

TABLE 1
ACUTE CORONARY OCCLUSION

Location of Infarct	No	Electrocardiogram			
		Consistent	Inconsistent	Negative	Questionable
Apical or anterior left vent	9	6	1	1	1
Apical and lateral left vent	1	1			
Apical, lateral and posterior left ventricle	1				1
Posterior (diaphragmatic) left ventricle	4	1		2	1
Posterior and lateral left ventricle	1				1
Right ventricle	1	1			
No of Cases	17	9	1	3	4

TABLE 2
OTHER ELECTROCARDIOGRAPHIC CHANGES OCCURRING IN ACUTE CORONARY OCCLUSION

Location of Infarct	Low Voltage	Marked left axis deviation	Ventricular Paroxysmal tachycardia	Partial A V Block	Changing Auricular Pacemaker	Intraventricular Block	Left Bundle Branch Block*	Auricular Premature Beats	Ventricular Premature Beats	Auricular Fibrillation
Apical left ventricle	3	2								
Apical, lateral and posterior (left)			1			1			1	1
Apical and lateral (left)								1		
Diaphragmatic (posterior) (left)				1	1		1			
Right ventricle									1	
No of cases	3	2	1	1	1	1	1	1	2	1

*The new terminology of Wilson is used throughout this report

since it is a group such as ours that lives long enough to be studied by the practising physician it becomes the more important that we discover what such cases show clinically, by electrocardiogram, and at the autopsy table.

ACUTE CORONARY OCCLUSION

Seventeen cases of fresh coronary thrombosis were selected for study. All had had electrocardiograms within one month of death and all but two within two weeks. In all cases a typical area of cardiac infarction was demonstrated at autopsy. This was in the apex of the left ven-

infarct is associated with the T_1 type of change and a posterior infarct with the T_2 type.

From table 1 it appears that nine of the seventeen cases showed T wave changes typical enough to have permitted localization of the infarct before death, the greatest consistency being in the six cases with T_1 change in nine instances of infarct of the anterior and apical walls of the left ventricle. Of the total number with infarct, ten were essentially anterior, five were essentially diaphragmatic or posterior, one included almost the entire left ventricle, and one all of the right ventricle except the septal wall.

Eight cases showed electrocardiograms which were not satisfactory for localizing the infarct. One was inconsistent with the demonstrated lesion, three were non-diagnostic and four were questionable. Table 2 shows the other electrocardiographic changes in the total group of seventeen cases.

Inconsistent Electrocardiogram Case A. A., male, aged fifteen. The history of substernal distress in this case was of only one month's duration associated with attacks of nocturnal dyspnea. Autopsy showed numerous old scars of the left ventricle with a fresh infarct of the apex and lower part of the septum. The anterior descending branch of the left coronary was occluded. The right coronary showed moderate sclerosis. Electrocardiogram twelve days before death showed inversion of the T waves in leads two and three of the characteristic shape found in posterior infarction.

Questionable Electrocardiograms (4 cases) W. S., male, aged fifty-eight. For two years the patient had had dyspnea on climbing stairs. Sudden severe substernal pain awoke him from sleep two weeks before death. The course was typical of coronary thrombosis ending with rupture of the heart and cerebral embolus. Autopsy showed the pericardial cavity full of clotted blood. There was a softened area of reddish black discoloration extending from the left border around the left and posterior surfaces of the left ventricle to the septum and involving over half the left ventricular wall. This area bulged slightly and on the upper margin near the left border there was a perforation admitting the tip of a pair of forceps. Both coronaries showed numerous, almost contiguous, atheromatous plaques. The posterior descending branch of the left coronary was partially calcified and narrowed to one half its diameter and completely occluded in one spot by a fresh thrombus 0.5 cm. in length. Electrocardiogram was taken thirteen days before death and showed late deep inversion of T_1 . T_2 was flat and T_3 upright. This case has been called questionable in this series because although apparently inconsistent with the location of the infarct there was a possibility of incorrect labeling of the electrocardiographic leads since the summation of the Q-R-S and T complexes was such that lead three may have been incorrectly numbered as lead one.

O. L., male, aged fifty six. For seven or eight years this man had had dyspnea and substernal tightness on exertion. Four years ago edema appeared. Two weeks before he came under observation the symptoms increased markedly with orthopnea and pain in the right upper quadrant of the abdomen. The course was that of rapidly progressive congestive failure. At necropsy the heart showed probable complete occlusion of the anterior descending branch of the left coronary

artery with moderate atheroma of the other branches and fresh infarction of the apex and lower part of the septum. Electrocardiogram taken four days before death showed low voltage and a very slight elevation of the S-T segment in lead one but no characteristic upward convexity or inversion of T_1 . There were multiple lung infarcts.

The two other questionable or non-diagnostic cases were complicated by intraventricular conduction defects. One had infarction of almost the entire left ventricle chiefly by involvement of the left circumflex artery and showed ventricular paroxysmal tachycardia. The other had left bundle branch block associated with infarction of the posterior wall of the left ventricle including the apex, with rupture of the heart.

Negative Electrocardiograms (3 cases) (1) H. T., male, aged forty eight. The patient was troubled for two months by "gasping spells" and for six weeks by substernal pain. Two days after surgical removal of a thyroid adenoma which was thought to be a factor in his symptomatology, the patient died suddenly. At autopsy a softened depressed area was found in the posterior wall of the left ventricle involving almost the entire upper third. On section it was found to be hemorrhagic and necrotic. About 1 cm. from its origin the left circumflex artery gave off a moderate-sized descending branch leading to the infarcted area which was completely occluded by a firm partially calcified thrombus. The heart weighed only 300 grams. An electrocardiogram taken thirty-six days before death showed sino-auricular tachycardia with a diphasic T wave in lead one. Another one recorded one week before death showed only slight left axis deviation.

(2) F. S., male, aged fifteen. This patient complained of attacks of dyspnea and substernal choking on exertion for three years. Two months before he was seen he had had a severe attack lasting one hour. This was repeated on the day before admission to the hospital. The heart at necropsy showed a softened area of infarction 2.5 cm. in diameter on the posterior wall of the left ventricle near the auriculo-ventricular junction. At the periphery there were numerous irregular, purplish hemorrhagic and whitish areas, some extending to the papillary muscles. The outer three-quarters of the wall was most affected. The coronaries showed moderate atheromatous degeneration with calcification. The left circumflex artery was completely occluded 1 cm. from its origin by a pinkish gray thrombus, and the terminal portion of the right coronary 4.5 cm. from the infarcted area was similarly completely occluded. Eight days before death the electrocardiogram showed normal complexes. The T waves in leads one and two were upright and T_3 was slightly inverted. The electrical axis was normal.

(3) B B, male, aged fifty-three The patient had typical coronary occlusion three weeks before the electrocardiogram was taken He died three days later The heart at autopsy showed a mottled brownish-grey appearance over the entire endocardial surface of the left ventricle with fibrous streaks through the body of the muscle The anterior descending branch of the left coronary showed an organizing thrombus completely occluding it 2 cm from its origin Moderate atheromatous changes were seen in the other coronaries Electrocardiogram showed only left axis deviation with slightly low origin of T₁

Comment This group of seventeen cases of acute coronary closure should more nearly approximate experimental occlusion in animals, and the findings by electrocardiogram should be more readily correlated with the pathological conditions demonstrated at autopsy, than those complicated by multiple infarcts Even in this group, however it is difficult to find completely satisfactory material Accurate localization of the infarct by the electrocardiogram was possible in 53 per cent of the entire group, and in 70 per cent of those in which the infarct was essentially anterior In the seven which were essentially in the posterior region of the left ventricle or in the right ventricle the electrocardiograms available were diagnostic in thirty per cent This may be due to the fact that patients with posterior infarcts have a better prognosis and do not come so often to autopsy during the stage of fresh or solitary infarction in this area but in our small series of seven cases it was greatly influenced by the fact that one of the seven had ventricular paroxysmal tachycardia and the other left bundle branch block which made the electrocardiograms non-diagnostic

Failure to correlate electrocardiographic and autopsy data accurately in these cases is due to many factors immediately obvious to anyone attempting to collect information from past records particularly in a field which is just beginning to be understood with accuracy This failure should make us more eager in the future to explain the discrepancies Of course great care must be taken to see that the electrodes are attached to the correct leads and that the tracings are properly labeled, but it is impossible to verify these points in electrocardiograms taken several years ago, although by inspection of the tracing alone it is usually clear what mistake may have been made

The factors more frequently causing confusion are concerned with other influences in the heart altering the character of the record in coronary occlusion, and the limitations dependent upon routine pathological study of the heart which may not include sufficient care in

the observation of details One of the chief mechanisms in the heart which modify the electrocardiogram is intraventricular block which usually obscures the characteristic Q-R-S and T changes In some instances, however, fresh occlusion in the presence of intraventricular block will cause marked changes in the electrical axis and the T wave Ventricular paroxysmal tachycardia also prevents accurate localization of infarct The effects of hypertension, auricular fibrillation and digitals at times cause confusion. Other types of myocardial injury not dependent on coronary disease may produce profound changes in the T waves, if not the more sensitive alterations in Q waves Pericarditis, uremia, rheumatic carditis, diphtheria, rare types of cardiac failure of unknown etiology, and possibly coronary spasm from the use of tobacco should be mentioned in this connection It also appears that marked involvement of the major part of one ventricle or the other, or of both, may produce uncertain electrocardiographic records Again, as Wilson has shown in dogs, the effect of the electrical potential changes at the margins of the infarct the extent of which, on examination of the heart may have escaped our accurate delimitation, are more important than those at the center of the necrotic area One other very important factor in the apparent discrepancy between electrocardiographic and pathologic findings is the failure to record electrocardiograms at the optimum time in the course of the occlusion or to neglect to take serial tracings on successive days during the early stages of infarction

In the examination of the heart itself are to be found other sources of error The routine method of opening the chambers of the heart leads to a distortion of the relations, and the extent of infarcts at the apex may not be accurately determined, especially as regards the involvement of the diaphragmatic or posterior surface In some cases, also, the fresh infarct may be obvious but others deep in the muscle, not involving the endocardial or epicardial surfaces, may be missed In other cases the coronary vessels may be found patent to a certain degree when the patency is due to recanalization of the vessel leading to a hidden area of infarction It has been suggested by Wilson that gross transverse sections should be made without opening the heart in the customary manner, perhaps after injection of the coronaries to test their patency, as the best method of finding all the myocardial changes Such study will add much to our knowledge as further investigation with precordial leads is carried on

OLD CORONARY SCLEROSIS OR OCCLUSION WITH ADDITIONAL RECENT INFARCT

A series of sixteen cases was studied in which in addition to an old or slowly developing coronary closure, there was found a fresh throm

		cardiogram istent With Posterior Infarct	Comment
1	J	+	Low voltage and slight inversion of T, when fresh infarct was two weeks old
2	N	+	Slurred Q-R-S with sharp inversion of T, and slight of T Q disappeared after final apical infarct
3	W	+	Deep inversion of T ₁ and moderate of T ₂ . Before death T ₁ was less inverted and there was sagging of S-T interval in leads 1 and 2 and final intraventricular block
4	W	+	Low voltage Slightly inverted T and T ₂ .
5	J	+	Inverted T and T ₂ . Slurred Q-R-S Low voltage
6	A.	?	Auricular flutter low voltage and probable right bundle branch block
7	C	+	Left axis deviation with diphasic T and high origin and late inversion of T ₁ and T ₂ . Deep Q
8	H.	+	Idioventricular rhythm Left axis deviation High ST and T ₂ next day high take-off of T and T ₂ with late inversion of T ₂ .
9	J	+	Records taken only during 9 months following original occlusion. Showed intraventricular block of unusual type with slurred S and upright slurred S ₂ . Inverted Q-R-S ₂ . Inverted T and T ₂ and at times T ₂
10	R	?	Left bundle branch block which after later occlusion showed diphasic T and T ₂ and flat T and less intraventricular block. Left bundle branch block then recurred with inverted T ₂ .
11	H	?	No eeg. taken after recent occlusion. Eeg 9 months before death showed left axis deviation P-R interval .22 sec and slight late inversion of T ₂ .
12	D	?	Intraventricular block—left branch type with inverted T
13	A	Neg	Normal eeg 2 1/2 years before death. Nothing but slight late inversion of T ₂ 4 weeks before death. No eeg. after attack of pain. All eeg. after infarct
14	S	?	Auricular fibrillation and left bundle branch block
15	C	+	Inverted T ₁ and T ₂
16	O		Left bundle branch block with change of Q ₁ and T ₂ with infarct.

tions In one of these, however, the T_3 change suggested a posterior infarct and at autopsy an old and new infarct of the lateral wall of the left ventricle was found with aneurysm of the ventricular muscle. In two others with left bundle branch block, fresh infarction of the anterior wall of the left ventricle produced in one an inversion of the T wave in lead three* and in the other a change in the Q and T waves in lead one.

Of the sixteen cases of the group with old and acute coronary narrowing and occlusion there were nine that showed T wave changes characteristic of coronary occlusion. Only one was of the T_1 type although three others had fresh occlusion in the apex of the heart and one

based 3 cm from its orifice. In the third instance (case 15) no infarcts were found but the right coronary ostium was occluded by a lunatic process in the aorta.

Case 13 had advanced coronary disease with old and fresh occlusion of the left coronary, practical occlusion of the descending branch of the left circumflex, old occlusion of the right with fresh thrombi in both right and left. An electrocardiogram was made after the final attack of pain from which he died in twenty-four hours. No infarcts were found in the ventricular wall and the muscle was negative to microscopic examination. Electrocardiogram taken two and one-half years before death was normal as was one taken three weeks before death. His

TABLE 5

T WAVE CHANGES IN RELATION TO POSITION OF OLD AND NEW INFARCT FROM A TOTAL SERIES OF 16 CASES

Type	Position of Old Infarct	Position of New Infarct	Case No.	No. of Cases
T_1	Middle 1/3 septal wall of left ventricle	Same	11	1
T_2	Upper posterior left ventricle	Apex	1	
	Lateral and posterior left	Posterior	3	
	No definite old infarct	Apex	2	
	Lower anterior and lateral wall of left and lower septum	Apex	4	
	Upper 1/3 anterolateral left ventricle	Posterior left ventricle, lateral right, lower septum	5	8
	Posterior left, posterior 1/2 septum and apex	Junction of anterior and lateral surfaces of left ventricle	7	
	Upper anterior and posterior right ventricle	Anterior right and left and posterior right	8	
	No infarct but right coronary ostium completely closed	0	15	

9

in the anterior and lateral surface of the left ventricle. The tracings in these four cases were all taken within three weeks of the fresh infarct. Reference to the table shows, however, that in the T_3 group (eight cases) a lesion was found in the posterior wall of the left ventricle in all but three cases even though in some instances a fresher lesion was found at the apex.

Explanation of the inconsistency in these three cases may be found in the individual conditions. In one (case 2) although no old infarct was found in the posterior part of the left ventricle and the anterior descending branch of the left coronary was occluded, nevertheless the left circumflex, right circumflex and posterior descending were also almost closed. In case 4 there were a few fibrous scars in the right ventricle and although the anterior descending branches of the left coronary were occluded the right coronary was almost completely throm-

angina pectoris had been present for only a year and a half and the findings illustrate strikingly that it is possible for occlusions of all the main coronary branches to be present without infarction of the heart wall and with normal electrocardiographic tracings.

OLD CORONARY SCLEROSIS AND OCCLUSION

Twenty-eight cases of old coronary sclerosis and occlusion with myocardial infarcts or diffuse fibrosis were found in our series. Table 6 gives the data in these cases.

It will be seen that of this group only four showed electrocardiograms characteristic of the T_1 type of change, of which one was questionable, and only four were suggestive of the T_2 change but two of these were questioned. Explanation for this probably lies in the involvement of diffuse regions of the coronary system by sclerosis, in the patchy character of the myocardial scarring and in the recanalization of older occlusions. In five cases and a possible sixth, left bundle branch block interfered with

*White, Paul D. Electrocardiographic evidence of recent coronary thrombosis superimposed on bundle branch block resulting from previous coronary disease. *Am Heart J* 10: 260 (Dec.) 1934.

No of Case		e Changes				
		Low Voltage	Premature Beats	Auricular Fibrillation	Left Axis Deviation	Negative Ecg
1	H B.		+			
2	S G					
3	J D					
4	W B					
5	C K	+				
6	W Z		+		+	
7	R. B.					
8	J L.					
9	T L.		+			1 yr

of the Q R-S not exceeding 5 mm in either phase [seen in all leads in pericarditis, rheumatic carditis uremia, in rare unexplained cardiac dis-

tions In one of these, however, the T₃ change suggested a posterior infarct and at autopsy an old and new infarct of the lateral wall of the left ventricle was found with aneurysm of the ventricular muscle In two others with left bundle branch block, fresh infarction of the anterior wall of the left ventricle produced in one an inversion of the T wave in lead three* and in the other a change in the Q and T waves in lead one

Of the sixteen cases of the group with old and acute coronary narrowing and occlusion there were nine that showed T wave changes characteristic of coronary occlusion Only one was of the T₁ type although three others had fresh occlusion in the apex of the heart and one

bosed 3 cm from its orifice In the third instance (case 15) no infarcts were found but the right coronary ostium was occluded by a luetic process in the aorta

Case 13 had advanced coronary disease with old and fresh occlusion of the left coronary, practical occlusion of the descending branch of the left circumflex, old occlusion of the right with fresh thrombi in both right and left No electrocardiogram was made after the final attack of pain from which he died in twenty four hours No infarcts were found in the ventricular wall and the muscle was negative to microscopic examination Electrocardiogram taken two and one-half years before death was normal as was one taken three weeks before death. His

TABLE 5

T WAVE CHANGES IN RELATION TO POSITION OF OLD AND NEW INFARCT FROM A TOTAL SERIES OF 16 CASES

Type	Position of Old Infarct	Position of New Infarct	Case No	No of Cases
T ₁	Middle 1/3 septal wall of left ventricle	Same	11	1
T ₃	Upper posterior left ventricle	Apex	1	8
	Lateral and posterior left	Posterior	3	
	No definite old infarct	Apex	2	
	Lower anterior and lateral wall of left and lower septum	Apex	4	
	Upper 1/3 anterolateral left ventricle	Posterior left ventricle, lateral right, lower septum	5	
	Posterior left, posterior 1/2 septum and apex	Junction of anterior and lateral surfaces of left ventricle	7	
	Upper anterior and posterior right ventricle	Anterior right and left and posterior right	8	
	No infarct but right coronary ostium completely closed	0	15	
				9

in the anterior and lateral surface of the left ventricle The tracings in these four cases were all taken within three weeks of the fresh infarct Reference to the table shows, however, that in the T₃ group (eight cases) a lesion was found in the posterior wall of the left ventricle in all but three cases even though in some instances a fresher lesion was found at the apex

Explanation of the inconsistency in these three cases may be found in the individual conditions In one (case 2) although no old infarct was found in the posterior part of the left ventricle and the anterior descending branch of the left coronary was occluded, nevertheless the left circumflex, right circumflex and posterior descending were also almost closed In case 4 there were a few fibrous scars in the right ventricle and although the anterior descending branches of the left coronary were occluded the right coronary was almost completely throm-

bus angina pectoris had been present for only a year and a half and the findings illustrate strikingly that it is possible for occlusions of all the main coronary branches to be present without infarction of the heart wall and with normal electrocardiographic tracings

OLD CORONARY SCLEROSIS AND OCCLUSION

Twenty-eight cases of old coronary sclerosis and occlusion with myocardial infarcts or diffuse fibrosis were found in our series Table 6 gives the data in these cases

It will be seen that of this group only four showed electrocardiograms characteristic of the T₁ type of change, of which one was questionable, and only four were suggestive of the T₃ change but two of these were questioned Explanation for this probably lies in the involvement of diffuse regions of the coronary system by sclerosis, in the patchy character of the myocardial scarring and in the recanalization of older occlusions In five cases and a possible sixth, left bundle branch block interfered with

*White Paul D. Electrocardiographic evidence of recent coronary thrombosis superimposed on bundle branch block resulting from previous coronary disease Am Heart J 10 260 (Dec.) 1934

the characteristic T wave changes. No right bundle branch block was found.

T₁ Type In the four cases of this type all had evidence of infarct at the apex of the heart or anterior wall of the left ventricle, and the anterior descending branch of the left coronary or the first portion of the left coronary, was involved in the three characteristic cases. In the questionable case all the arteries were sclerosed and a fresh thrombus was found in the right circumflex.

T₂ Type In the four cases showing the T₂ change the electrocardiogram did not so clearly correlate with the expected pathology. Of the two with typical T₂ change one showed marked calcification of all the coronaries most marked in the anterior descending on the left with infarction of apex and adjoining septum with slight aneurysm of the anterior wall of the left ventricle. These findings seem definitely inconsistent with the electrocardiogram. The other case had involvement of all the main coronary branches and infarction at both apical anterior region of the left ventricle and posterior wall of the left ventricle.

Of the non-characteristic cases one showed diffuse fibrosis of the heart with recanalized thrombus of the right circumflex, and the other showed complete occlusion of right coronary and anterior descending and circumflex on the left, the apex of the left ventricle showing some thinning.

Left bundle branch block Of the six cases of left bundle branch block, five had infarcts at the apex of the left ventricle. The sixth had no infarct but showed a thrombus in the left anterior descending artery. This artery seemed involved particularly in all the other cases of bundle branch block except one which showed an anomaly of the coronary system, all the arteries arising from a common left coronary.

Less definite bundle branch block occurred in two cases. In both, the anterior descending branch of the left coronary and the apical region were the most prominent pathologic areas.

Indefinite T wave changes were recorded in eight cases. In this group diffuse scarring of the ventricles, involvement of the left margin of the left ventricle, absence of definite scars in spite of occluded arteries or involvement of both right and left coronaries seemed the factors accountable for most of the lack of characteristic changes.

Auriculo-ventricular block Five cases showed conduction defect between auricles and ventricles. In all the left anterior descending artery was involved and in two the right was also occluded. Marked involvement of the septum was noted in one of these cases.

Low Voltage In five cases low voltage of the electrocardiograms was observed, the deflection of the Q R-S not exceeding 5 mm in either phase in any lead. It is to be noted that old diffuse

fibrosis of the ventricles, chiefly the left, was present in all. The coronary lesions were either extensive sclerosis without definite occlusion, involvement of the first portion of the left coronary (thus affecting its entire distribution), or occlusion in both coronaries.

Auricular fibrillation was present in two cases. In one almost complete closure of the left anterior descending branch with infarct of the anterior wall of the left ventricle was demonstrated, and in the other an occlusion of a branch of the left circumflex with infarct of the midportion of the obtuse margin.

Left axis deviation of considerable degree occurred in six, all with pathology in the left ventricle.

Negative Electrocardiograms In two cases electrocardiograms were found to be essentially negative one year and two months respectively before death.

The former a man of sixty six, had angina pectoris for eleven years and died suddenly five days after the onset of phlebitis in one leg. No pulmonary embolus was found but complete thrombosis of the right coronary 1 cm from its orifice and of the left coronary 2.5 cm from the orifice. There was diffuse myocardial fibrosis.

The other patient was a man of seventy two who died suddenly two weeks after an operation for cancer of the lip after suffering from angina for seven years with radiation of pain to the right arm. Old occlusion of the left anterior descending and right circumflex and practical occlusion of the left circumflex were found. Unfortunately no description of the condition of the muscle was given.

SUMMARY AND CONCLUSIONS

The study here presented reports the autopsy experience at the Massachusetts General Hospital for twenty years (1914-1934) in proved cases of coronary occlusion that had had electrocardiographic records shortly before death. Sixty-one cases are analyzed. Complete or recanalized thrombosis of a main artery or a main branch was found in the left coronary system in forty six cases and in the right in twenty-one. In the same period of time 437 cases of coronary occlusion have been diagnosed clinically in this hospital.

It is clear that cases with acute coronary thrombosis with closure limited to a single coronary artery or branch of an artery are relatively rare at the autopsy table. Only seven such cases are so designated in our series and not all of these are completely uncomplicated. The development of the Q₁T₁ and the Q₂T₂ changes in this group is most typical and it is this change in the electrocardiogram which is specific for the localization of myocardial infarct. Inversion of the T waves alone may be seen in all leads in pericarditis, rheumatic carditis, uremia in rare unexplained cardiac dis-

case in which the coronary system is normal at autopsy, and apparently in relation to anoxemia and possibly coronary spasm as a temporary phenomenon

When acute cardiac infarction is limited to the apex and anterior wall of the left ventricle our figures indicate an accuracy of seventy per cent in the localization of the infarct by the electrocardiogram from standard limb leads. In posterior or diaphragmatic infarcts or infarcts of the right ventricle the electrocardiogram was typical and diagnostic in only thirty per cent but this was influenced by the presence of intraventricular block and the series was small. It appears likely that more careful study with serial electrocardiograms and precordial leads will improve these figures although as yet the use of precordial leads appears of more value in localizing anterior rather than posterior infarcts. The occurrence of intraventricular block is a serious handicap to accurate antemortem localization of infarcts in the myocardium but in some instances repeated tracings are of value in diagnosing the advance of the occlusion or the development of a fresh one. Apparent inconsistencies between the pathologic and electrocardiographic findings should lead at necropsy to a more careful study of all parts of the myocardium even when the position of the fresh infarct seems obvious. However, high degrees of coronary thrombosis with fresh infarction can occur with normal electrocardiograms. In the three cases in our series the infarction was in the posterior wall of the left ventricle in two and diffusely over the endocardium of the left ventricle in one.

In the group of sixteen cases with old and fresh occlusion, low voltage and intraventricular block become more prominent (eleven cases), and the T wave changes less typical. In our series only one case of the T_1 type appeared and this was not entirely characteristic. Eight cases of the T_2 type were recorded but apparently there was no more relationship to the fresh infarct than to the older process and in one case no infarct was found but the right coronary ostium was closed by a luetic process in the aorta.

In this group also a case was found with occlusion of all the main coronary branches without myocardial infarction with normal electrocardiogram three weeks before death.

The final group of twenty-eight, with old coronary and myocardial pathology, consists of cases many of whom were diagnosed as coronary thrombosis only at autopsy although angina pectoris was the presenting symptom in thirteen, cardiac asthma in twelve, and dyspnea on exertion in two. Congestive failure was a frequent cause of death. Only eight cases had electrocardiograms characteristic of either anterior or posterior cardiac infarct. Intraventricular block was present in eight cases and low voltage in five. T wave changes of an indefinite nature occurred in eight. It was clear by electrocardiogram that myocardial disease based on coronary arteriosclerosis was present in all but two cases and in these two the clinical history revealed prolonged angina pectoris, but little hope of localizing the cardiac infarct could be expected from a study of this group. However, had serial electrocardiograms been taken for several years before death the position of some of these infarcts might very well have been deduced. In the entire group of forty-four cases showing old coronary occlusion with or without fresh occlusion the electrocardiogram was diagnostic of cardiac infarct, irrespective of its location, in 38 per cent.

This study is intended to summarize the situation in relation to coronary thrombosis in a general hospital in which there has been an active interest in the problems of coronary disease for many years but in which no special techniques have been used for demonstrating coronary and myocardial pathology at autopsy. It illustrates what can be expected in the routine work of the electrocardiographic laboratory and autopsy room and it points the way toward more intensive study by both departments in order to utilize the material which may be available in the future for the solution of the problems of diagnosis and prognosis still remaining in this condition.

THE THYMUS SUPERSTITION*

BY HENRY W HUDSON, JR, M D †

PHYSICIANS interested in the care of infants and children are confronted frequently with the question of the thymus as a possible source of danger. This may be illustrated by two recent experiences. Tonsillectomy had been recommended for a child. The mother stated that she wished an x-ray examination of the

thymus giving as her reason the statement volunteered by an osteopath friend that it was necessary and a routine in the hospital with which he was affiliated. As confirmatory evidence another friend, a roentgenologist, had stressed the importance and added that all doctors' children were x-rayed before operation. When informed, by the mother, of a previous operation under nitrous oxide the roentgenologist explained that ether anesthesia was more likely to be influenced by an abnormal thymus.

*Read as a part of the program for the Clinical Congress of Surgeons.

†From the Surgical Service of the Boston Children's Hospital.

†Hudson, Henry W. Jr.—Associate Surgeon, Children's Hospital. For record and address of author see "This Week's Issue" page 945.

than anesthesia by nitrous oxide. A second patient came for removal of a supraclavicular lipoma. Eight months before, an operation had been performed in his home city. The parents were well pleased with the result of operation but displeased with the surgeon. Previous to operation, the surgeon had stressed the importance of x ray examination of the thymus but, due to some oversight, the examination was not made until after the successful completion of the operation. The examination was then said to have demonstrated the largest thymus ever seen in the — hospital, and accordingly x ray treatment was instituted. The father, an engineer, was unwilling to place his child under the care of the local surgeon a second time because of his supposed error of omission.

Recently a front page article in our lay press dealt with the death of a young person who had been in an accident. The article competed for prominence with the economic and political news of the day and commented "in children up to twelve years it has become routine practice to x ray for evidence of persistent thymus because the shock of an operation may prove fatal. If the gland is evident, it can be reduced by further use of the x ray until sufficiently small to permit operation. The thymus is unknown in adults. Children in whom the gland persists invariably die as the result of some shock physical or mental between the ages of four and five and twenty." Editorial comment in the *New England Journal of Medicine* properly deprecated the muddling of scientific facts common to newspapers and the unnecessary mental anguish they cause parents whose children require surgical treatment.

Several years ago I witnessed a death during anesthesia due to the difficulties of administration caused by the nature of an injury. Because of the injury the death came within the jurisdiction of a medical examiner. He was quoted by the newspapers to the effect that children often die under anesthesia. This was interpreted by some as indicating a death under anesthesia, due to the thymus.

Such professional experience lay gossip, and newspaper comment is disquieting. We are in a somewhat chaotic condition due to the insistence of some hospitals that x ray examination of the thymus be made before an operation of election while other equally prominent institutions have no such requirement.

One might adopt an attitude of complacency and have his patients x rayed when the question is raised by the parent or when the hospital requests it. This would certainly be an easy way but, like other easy ways might be a source of danger and, perhaps, tinged with scientific dishonesty.

The question may be easily stated. Is it

necessary to radiate a thymus which has been interpreted as being enlarged by x ray? Is it necessary to subject children who are to undergo an operation of election to x ray examination of the thymus? If these questions can be answered in the negative, unnecessary parental anxiety unnecessary expense and unfortunate legal complications can be avoided.

Let us assume that a child has died during anesthesia and that his physician has been summoned as defendant in a suit alleging negligence for failing to have a preoperative x ray examination of the thymus. The fact that such examination is required in certain hospitals might readily lead to an unjust verdict. Regardless of verdict and regardless of the statements of experts publicity would ensue, and parents would be subjected to an anxiety which some feel is without foundation.

The second point I wish to emphasize is an economic one. Costs are not to be considered if an essential safeguard is to be sacrificed. But if there is in fact, no such sacrifice an inquiry into costs is appropriate. Someone pays for such x rays, whether patient, hospital, municipality, or foundation. There are, for example some 4,000 anesthetics administered on the public service of The Children's Hospital each year. I am informed that the actual cost of a single x ray examination is not less than \$3.00. An annual expenditure of about \$12,000 is of some moment. A charge of \$10.00 to the private ward patient may prove a very real addition to the parent who finds the expense of a child's illness a difficult burden to bear.

One might also consider the propriety and honesty of continuing a practice for which there is little support and against which there is a mass of critically compiled data.

Although a number of authors had questioned the rôle of the thymus in sudden death from apparently trivial cause it remained for Hammar¹ by establishing the normal growth phenomena of the thymus, to refute the misconceptions generally held. His studies seriously questioned the theory that death under anesthesia and during operation might be caused by an enlarged thymus. In 1926 the Medical Research Council and Pathological Society of Great Britain formed a committee to collect information on a large scale, for the purpose of establishing standards and investigating closely the precise cause of death in persons dying suddenly from unexplained or trivial causes when the only apparent abnormality was the presence of a large thymus. An analysis of this data was presented in 1931 by Young and Turnbull.² The standards were in agreement with those of Hammar. Young and Turnbull write "An abnormally large thymus in itself cannot be considered to be the indication of status thymicolympathicus when no obvious cause of death is

found post-mortem" and again, "In the opinion of the Committee the facts elicited in the present inquiry are in harmony with those of Hammar (1926 and 1929) and Greenwood and Woods (1927) in affording no evidence that so-called status thymico-lymphaticus has any existence as a pathological entity."

Another very careful study was made by Boyd⁶ and reported in 1932. She states (referring to the x-ray studies of Liss, Wasson, Shannon, and of Cooperstock) "These roentgen findings agree with the anatomic ones, that the largest thymuses occur in healthy children killed suddenly by accidents and that the thymus weight-body weight ratio decreases with age." And again, "at all ages the variability of the weight of the thymus is high." Applying her findings, she states that both the mean and median weight increase rapidly in the first months of life, double their birth size by two years, and triple it by eleven years, then both decrease slowly to about birth size at senility. She also states "when illness has lasted longer than twenty-four hours, the weight of the thymus is reduced regardless of the cause of death with the exception of tumors of the thymus, leukemia, and exophthalmic goitre. The concept of a pathological state arose from misconstruing the normal prominent thymus and lymphoid tissue for a constitutional abnormality and vice versa the involuted, inconspicuous thymus of mania being misconstrued the normal." Her paper includes references to the observations of other authors.

Gailand⁶ examined the records of 1564 autopsies performed at the Massachusetts General Hospital. In twenty-three instances thymus glands in excess of the generally accepted normal weight were encountered. Eleven had survived the immediate effects of major operations. One case only had died during operation (sigmoidostomy for intestinal obstruction). Nine cases had had an x-ray examination, in only one of which was possible thymic enlargement suggested. Four cases might have been clinically grouped as thymic deaths, but in all four sufficient other pathological changes were found to account for death. His concluding statement is, "The present vogue of x-raying for thymus and radiating all cases in which a shadow appears would seem to be unjustified."

Epstein⁷ reported the cause of death and incidence of disease in a series of 1000 consecutive autopsies at the Children's Memorial Hospital. Twenty-two cases were classed as status lymphaticus. Epstein states such a classification is made with reluctance but the finding of a well-nourished body, generalized lymphadenopathy, large thymus, and petechial visceral hemorrhages, taken with a history of sudden death from unexplained cause make such a diagnosis necessary. The thymus was weighed in seventeen of these cases. The largest weighed 50 Gm,

the smallest 22 Gm, and the average was 32.5 Gm. In six, pneumonia was demonstrated microscopically. Whether any of these children had died during anesthesia or operation is not stated. In view of the work by Hammar, Boyd, and the Status Lymphaticus Investigation Committee, it is doubtful if these thymuses were enlarged. They may represent instances of the normal thymus and lymphoid tissue of well-nourished children who die suddenly. The fact that no other cause of death was ascertained in seventeen, does not necessarily incriminate the thymus.

Farber⁸ has studied the protocols of 2000 consecutive necropsies at the Boston Children's Hospital. This covered a twelve-year period during which autopsies were obtained in seventy per cent of the deaths. About 50,000 operations under anesthesia were performed during this time. He was unable to find "a thymus which we could regard as pathological in size, nor have we found in any case a thymus which has been associated with definite symptoms during the life of the individual." Farber points out the necessity for painstaking observation and thorough examination if the true cause of death is to be uncovered.

These are only a few of the papers but they are critically written after careful observations of a large amount of material. Papers expressing different views may be found but do not offer impressive evidence for the views held.

We are able to present certain information from the Children's Hospital which is in harmony with the beliefs which have been expressed. There are about 4,000 children anesthetized each year. Economy at the expense of safety has never been a custom of the hospital. It is the opinion of those responsible for policies that preoperative x-ray examination of the thymus is neither necessary nor desirable and such examinations have never been a routine. Dr. P. J. Mahoney has analyzed the data from the records of 16,195 children anesthetized between January 1, 1930, and September 1, 1934. There were 225 deaths (1.4 per cent) and autopsies were obtained in seventy per cent. He was unable to find a death which could be attributed to the thymus.

One is familiar with the customs of those making use of the private ward. There each year about one thousand children are anesthetized (in addition to the figures mentioned above). In a few instances, physicians have an x-ray examination of the thymus made before an operation of election but these are very much in the minority. An examination of the published reports of the hospital reveals no death attributed to the thymus since the private ward was opened. Apparently the experience of the private ward staff is similar to that of the full staff of the hospital.

To supplement the information I wrote to six

teen physicians in this community. These were not selected for any personal reason, nor because their views were known, but because they have had an unusually large experience with children. Eleven replied and were willing to be quoted. Eight are in private practice and three in full time clinical positions. Nine occupy professional chairs. Four pediatricists, four otolaryngologists, two surgeons, and one orthopedic surgeon replied.

Of the eleven, nine had never witnessed a "thymus death", one did not answer this question and one did not answer it directly but implied that he had seen such a death.

Nine stated that they believed routine preoperative x ray of the thymus neither necessary nor desirable, one did not answer and one believed it to be necessary and desirable.

One very kindly inquired into 11 000 tonsillectomies in another institution and stated that in that group there had been no thymus death.

Two stated that they did not consider x ray examination of the thymus, as ordinarily made an accurate criterion of the size of the thymus. Two stated that if the examination was made and interpreted as showing thymic enlargement, radiation would be recommended even in the absence of symptoms. One of these added that he did not believe it was necessary but that it was in accordance with general medical belief. Three definitely stated that, in the absence of symptoms, radiation would not be recommended even though x ray was interpreted as showing enlargement. Two stated that treatment of a structure whose function is not understood by an agent whose remote effects are poorly understood seemed to them to be potentially dangerous. This comment is noteworthy in view of the recent investigations of Rowntree, Clark and Hanson⁹ which indicate that "Thymus Extract (Hanson) has accelerated the rate of growth and development, has hastened the onset of adolescence in the offspring of treated rats, and has seemed to increase the fertility of parent rats."

Dr J. L. Morse's views have been expressed in two papers^{10, 11}. He considers that "there is much doubt whether the deaths that are attributed to status lymphaticus during anesthetization and operation are really due to it. There

is no proof that enlargement of the thymus is a primary or causative factor in the complex described as status lymphaticus. There is no justification, therefore, for the assumption that shrinkage of the thymus with the roentgen ray will have any effect on status lymphaticus. There is much reason to believe that many of the roentgenograms taken do not show the real size of the thymus and much evidence to show that it is very difficult to decide from a roentgenogram whether the thymus is larger than it ought to be in the given child at a given time. It does not seem either reasonable or justifiable, therefore, to say that a roentgenogram should be taken of every child before anesthetization or operation, that treatment with the roentgen ray should be given in every case before anesthetization and operation, if the roentgenologist thinks that the shadow is enlarged and that the physician or surgeon who does not follow this course of procedure is negligent."

CONCLUSION

The evidence does not support the contention that the thymus may be a cause of sudden death in infants and children.

Unnecessary parental anxiety, unnecessary expense, and unfortunate legal complications, can be avoided.

The continuation of an unwarranted fear by physicians and hospitals is undesirable.

REFERENCES

1. Hammar, J. A.: Fifty years of thymus investigations. *Ergebn. d. Anat. u. Entwicklungsgesch.* 18: 1 1909.
2. *Ibid.* The human thymus in health and disease. *Ztschr. f. mikrosk. anat. Forsch.* 6: 339 19 4.
3. *Ibid.* Die Lehre vom "Status thymicus" im Lichte der normalen Thymus Verhältnisse. *Klin. Wchnschr.* 2: 1285 (July 3) 1929.
4. Young, M. and Turnbull, H. M.: An analysis of the data collected by the status lymphaticus investigation committee. *J. Path. & Bact.* 34: 213 1931.
5. Boyd, E.: The weight of the thymus gland in health and disease. *Am. J. Dis. Child.* 43: 1162 (May) 1922.
6. Garland, J.: Some side lights on the thymus vogue. *New Eng. J. Med.* 200: 19 (Jan. 20) 1929.
7. Dpat, J. M.: The causes of death and the incidence of disease in children. *Am. J. Dis. Child.* 41: 1362, 1921.
8. Farber, E.: Fulminating streptococcus infections in infancy as a cause of sudden death. *New Eng. J. Med.* 121: 184 (July 26) 1924.
9. Rowntree, L. G.; Clark, J. H., and Hanson, A. M.: The biologic effects of thymus extract (Hanson). *J. A. M. A.* 102: 14 5 (Nov. 10) 1934.
10. Morse, John L.: The thymus obsession. *Boston M. & S. J.* 107: 1247 (Feb. 14) 1925.
11. *Ibid.* The thymus and status lymphaticus. *J. Mich. State M. Soc.* 29: 271 (April) 1930.

FRACTURES OF THE HEAD AND NECK OF RADIUS— SEPARATION OF UPPER RADIAL EPIPHYSIS

BY STEPHEN G JONES, M D *

FRACTURES of the head and neck of the radius comprise 17 per cent of all elbow fractures in a group of cases treated in a seven-year period between 1923 and 1930 at the Massachusetts General Hospital. They were 17 per cent of the total number of fractures during the same period. They constituted the third largest group of elbow injuries. Though these figures are not startling at a casual glance, the disability resulting from this group of injuries may be very crippling. Fracture of the head and neck of the radius is a serious injury and while the prognosis is good for recovery of a useful elbow, rarely is it a normal elbow. In a comparative study with other elbow injuries, the results in this group were less good than in any other type of fracture or dislocation of the elbow. It is a fracture occurring chiefly during the second, third, and fourth decades of life. In a series of 78 cases, 35 cases occurred between the ages of 20 and 40 years, with 15 cases in the 10 to 20 age period.

Of the 78 cases, the distribution between male and female was nearly equal, there being a few more male cases. There was one more fracture of the right than the left, equally divided between males and females in respect to rights,

TABLE 1

MISCELLANEOUS DATA ON 78 CASES

Male	44 = 56%
Female	34 = 44%
Right	35 = 51%
Left	34 = 49%
	9 not stated

Male	Right	= 18 = 51%
	Left	= 21 = 62%
Female	Right	= 17 = 49%
	Left	= 13 = 38%

46 cases treated in E.W. and O.P.D.	= 59%
32 cases treated in House	= 41%

and lefts predominating in the males. Forty-six of the 78 cases were treated in the Emergency Ward and Out-Patient Department, and comprise the simple fractures in the group. The 32 cases treated in the House were the more severe ones, or cases coming to the hospital with old injuries requiring special attention of one kind or another. End result studies have been accomplished chiefly on this group of House cases.

The problem involved in a fracture of the head or the neck is the same, the disability re-

sulting is similar, so no effort is made in this series to distinguish between them. Anatomically, the head consists of the imperfectly circular portion with the depression on the top or articular surface which articulates with the capitellum, and an edge which is in relationship with the lesser sigmoid cavity of the ulna. Its anterior posterior diameter is the greater. The neck is a constricted cylindrical portion about 1 inch in length. The epiphysis is one of the latest of the long bones to unite to the shaft, occurring at the age of 14 to 15 years. Below the age of 7, the epiphysis is largely cartilaginous and able to resist injury, so that the age period in which epiphyseal fracture may be produced is relatively short. The osseous center represents only a thin disk of bone and corresponds to the radial

TABLE 2

LIST OF COMPLICATING INJURIES

78 Cases

30 Cases with Complicating Fractures = 38 Per Cent	
Posterior medial Dislocation of the Elbow—	10
(with fracture of coronoid process 7)	
Fracture of Olecranon Process	8
Fracture Upper Third of Ulna into Elbow Joint	2
Intercondylar Fracture Lower End of Humerus	7
Os Calcis	1
Colles	1
Patella	1
	30

head. The orbicular ligament which attaches to the inner side of the head and neck makes them intra-articular, but is of very little importance in the mechanism of fracture except in limiting rotation.

Injuries of the upper extremity of the radius may be produced by indirect violence, the force being transmitted along the shaft to the radius, driving the head against the capitellum. The patient falls upon the pronated hand with the arm extended. More rarely direct violence is the cause, acting on the lateral aspect of the upper forearm or elbow. It is sometimes stated that torsion is a causative factor, but since the possibility of this has been disputed by dependable authorities, it remains a moot point, it is adequate simply to mention it in passing. Whatever the mechanism, in a fairly high proportion of cases (38 per cent in our series) the fracture occurs in association with some other bony injury, particularly posterior-medial dislocation of the elbow with fracture of the coronoid process (7), fracture of the olecranon process (8), frac-

*Jones, Stephen G.—Surgeon to Fracture Clinic, Massachusetts General Hospital. For record and address of author see "This Week's Issue," page 945.

ture of the upper third of the ulna into the elbow joint (2), and intercondylar fracture of the lower end of the humerus (7)

The common types of fracture occur. It may be a complete fracture, incomplete, comminuted, impacted, partial, or the whole head may be displaced off the shaft. The symptoms are those of fracture elsewhere: pain, tenderness, swelling over the outer aspect of the elbow. The arm is held in semiflexion and pronation. Supination is limited. There is loss of function. Crepitus is rare. Fragments may be displaced out, in or down. The diagnosis should be confirmed by x ray.

SEPARATION OF THE UPPER RADIAL EPIPHYSIS

The epiphyseal fractures numbered 3, or 9 per cent, in our group of 32 House patients

patients in that age range with but 3 separated epiphyses or 15 per cent. Summaries of the records of the patients with epiphyseal fracture are presented in table 3.

FRACTURES OF THE HEAD AND NECK OF RADIUS

Fractures of the head and neck of the radius, when accompanied by displacement, commonly cause serious impairment of elbow joint function. Not only does the bony deformity limit or prevent rotation of the upper articular element in the lesser sigmoid cavity of the ulna with loss of the ability to pronate and supinate the forearm, but there is frequently limitation of flexion and extension of the elbow as well. This is due to scar formation and thickening in the anterior capsular ligament, usually the result of the displacement of a fragment of bone in this direction.

TABLE 3

Identifi- cation	Age	Age of Injury	Compli- cations	Displace- ment	Treatment	Result	1 year
R. E. W.266360	13	2 days	Fracture of olecranon without displacement	Marked +++	Open reduction performed 5 days after injury. No internal fixation. Elbow splinted in acute flexion.	Good	Epiphysis closed.
N. K. W.276613	8	6 days	Fracture of olecranon without displacement. (Feeble-minded)	Marked +++	Elbow fixed in sling at right angle flexion. Reduction not attempted.	Fair	Supination lacks 15° extension lacks 20°. Loose body in joint.
L. P. O.276718	8	14 days	Greenstick fracture of ulna.	Marked +++ Callus present	Open reduction performed. Fragment loosened and replaced. Held in apposition by fixation of elbow in position of acute flexion.	Good	Only about 20° rotation of forearm. Flexion and extension normal. Epiphysis closed.

Two of the patients were aged 8 years, and one, 13 years. This conforms with the dictum that this injury occurs only within the ages 5 to 17 years. When the epiphysis is fractured and displaced it is apt to become isolated as a loose body in the joint, devoid of blood supply. This occurred in one of our 3 patients when no operation was performed to replace the epiphysis (a feeble-minded patient). In the other 2 patients, open reduction and replacement were performed and union in good position was obtained. No method of internal fixation was employed, the fragment being retained in alignment by the position of acute flexion of the elbow. Obliteration of the epiphyseal cartilage occurred in both cases, but no appreciable shortening of the radius resulted since the amount of growth contributed by the upper epiphysis at this age is slight.

It does not follow that patients injuring the upper extremity of the radius in the age limit 5 to 17 years all separate the upper radial epiphysis. In our series of 78 cases there were 20

Ossifying hematoma or myositis may also cause marked limitation of motion. This is particularly true in the case of fractures associated with dislocation of the elbow. It also may follow resection of the radial head but is not necessarily the result of operation. To guard against this complication at the time of operation, it is necessary to obtain careful hemostasis and to avoid leaving any loose bone fragments. This is a common error.

To prevent future disability, it is necessary to correct the bony deformity but the situation and nature of the fracture are often such as to render it impossible except by open operation. This may take the form of open reduction with replacement of fragments, removal of fragments or removal of the entire radial head. When the bony displacement is absent or slight, the treatment indicated is a protective Lund swathe or sling for about three weeks with gentle mobilization started the fifth to seventh day following injury. In operative cases, more stable immobilization is at times desired. The

elbow is splinted in the position of right-angled flexion in a light moulded posterior plaster splint for the period of one week, following which mobilization should be begun. The types of injury and incidence in 32 House patients are given in table 4.

TABLE 4

THE TYPES OF INJURY AND INCIDENCE
IN 32 PATIENTS

Epiphyseal Fractures, Upper End of Radius..	3
Fissure Fractures of Radial Head without Displacement	3
Fractures of Radial Head with Displacement..	15
Fractures of Radial Neck with Displacement..	4
Comminuted Fractures Involving both Head and Neck	7
	32

In our group of 32 House patients with fracture of the head and neck of the radius, operative treatment was employed in 20 and consisted of open reduction in 6, excision of loose fragments in 5, and resection of the head in 9.

TABLE 5

OPERATIVE CASES OUT OF 32 HOUSE PATIENTS

Removal of Head	9 = 28%
Removal of Fragments	5 = 16%
Open Reduction	6 = 19%
	20 = 63%

The results in these were rated as good in 10, fair in 4, poor in 4, and unknown in 2.

least two-thirds of the circumference of the head remains intact, including the inner half that articulates with the ulna. Excision of the head gave satisfactory results in every case performed early, but the late excisions were not so encouraging. The policy of waiting on comminuted and displaced fractures of the head and neck of the radius to see what result is obtained, with the thought that if it is not satisfactory, open operation can be performed, should be abandoned. Early operation is imperative if operation is indicated. The average hospitalization was 20 days. The period of disability ranged from 1 to 22 months, the average being 9 months to 1 year before return to work. Both the average hospitalization and disability figures are considerably influenced by the complicating injuries which were present in 38 per cent of the cases.

There are two operative approaches to the head of the radius.

The Anterior Approach. An anterior incision is made over the head of the radius. The supinator longus muscle is retracted outward exposing the musculospiral nerve. This, in turn, is retracted outward. The capsule lies directly beneath, over the head of the radius.

The Posterior Approach. A posterior lateral incision is made, the skin flap being turned upward. The musculospiral nerve is identified passing around the head of the radius. This is retracted downward with some of the fibers of the anconeus muscle, exposing the head of the radius.

The anterior approach is employed for replac-

TABLE 6

THE RESULTS OBTAINED IN FRACTURE OF THE HEAD
AND NECK OF RADIUS

		Total	Good	Fair	Poor	Unknown
No Reduction or Operation Performed		12	3	2	2	5
Open Reduction and Replacement	Early	5	2	—	1	2
	Late	1	—	1	—	—
Excision of Fragments	Early	4	2	1	1	—
	Late	1	1	—	—	—
Excision of Head	Early	5	4	1	—	—
	Late	4	1	1	2	—
		32	13	6	6	7

It would seem from this analysis, with only 3 good results out of 12 non-operative cases, that more of this group should have been operated on. The 3 cases obtaining good results were treated immediately following the injury. The others were treated immediately except for 3 cases which were treated 1 day, 6 days, and 8 months after injury. Open reduction and replacement gave good results only in the 2 cases of separation of the epiphyses. Excision of fragments gave good results in certain cases. Excision of loose bone fragments should be performed only in the case of fractures involving the radial head when there is a single fragment and when at

ing dislocation of the head of the radius. The posterior approach is preferable for other conditions of the head of the radius requiring surgery.

Conclusions

1. Open reduction with replacement ought not to be attempted except in the case of epiphyseal fractures and occasionally in fractures of the radial neck.

2. Excision of fragments gave good results in certain cases where a single small fragment, which did not articulate with the ulna, was removed.

3 In all comminuted and displaced fractures of the head and neck, resection of the head should be advised.

4 The resection of the head should be performed early (within the first 2 weeks) rather than late.

5 Ossifying hematoma or myositis is a common complication

6 Fracture of the head or neck of the radius with displacement is a serious injury. While the prognosis is good for recovery of a useful elbow, rarely is it a normal elbow.

REFERENCES

1. Eliason, Eldridge L.: Fractures of the Humerus, Radius, and Ulna.
2. Nelson Loose-Leaf Living Surgery Volume III.
3. Wilson, P. D. and Cochrane, W. Fractures and Dislocations Philadelphia J. B. Lippincott Company 1921

The Massachusetts Medical Society

PROCEEDINGS OF THE COUNCIL

Special Meeting, April 3 1935

A SPECIAL MEETING of the Council of the Massachusetts Medical Society was held in John Ware Hall, Boston Medical Library 8 Fenway, Boston, on Wednesday, April 3 1935 at 12 o'clock, noon, the President of the Society, Dr. William H. Robey, in the chair and Dr. A. S. Begg, Norfolk, serving as Acting Secretary. The following 131 Councilors were present:

BARNSTABLE

Samuel M. Beale, Jr.

BRISTOL NORTH

William H. Allen
Arthur R. Crandell
B. M. Latham

BRISTOL SOUTH

George W. Blood
R. B. Butler
Philemon E. Truesdale

ESSEX NORTH

E. S. Bagnall
R. V. Baketel
J. Forrest Burnham
Henry F. Dearborn
Arthur P. George
Thomas R. Healy
E. P. Laskey
Leroy T. Stokes
W. D. Walker

ESSEX SOUTH

J. F. Donaldson
William T. Hopkins
J. F. Jordan
Walter G. Phippen

FRANKLIN

H. M. Kemp

HAMDEN

John M. Birnle
W. A. R. Chaplin
Frederic Hagler
Allen G. Rice
George L. Schadt

MIDDLESEX EAST

J. Harper Bledsall
Richard Dutton

Joseph H. Fay

Edward M. Halligan
K. L. MacLachlan
R. R. Stratton
E. E. Tyzzer

MIDDLESEX NORTH

Archibald R. Gardner
G. A. Leakey
T. A. Stamas
Michael A. Tighe

MIDDLESEX SOUTH

Charles F. Atwood
Elmer W. Barron
C. F. K. Bean
Enos H. Bigelow
Allen H. Blake
George F. H. Bowers
A. C. Cummings
D. F. Cummings
A. W. Dudley
Wilfred G. Grandison
Fred A. Higginbotham
Norman M. Hunter
C. M. Hutchinson
Josephine D. Kable
Alexander A. Levi
L. W. McGuire
John A. McLean
Edward Mellis
Charles E. Mongan
W. D. Reid
Sumner H. Remick
C. H. Staples
H. P. Stevens
F. Van Nuy
W. S. Whittemore

NORFOLK

F. G. Balch
A. S. Begg
Horace K. Boutwell

L. A. Finkelstein

Carleton S. Francis

Alice M. Gray

Walter A. Griffin

J. B. Hall

Charles J. Kichham

Walter A. Lane

J. S. H. Leard

J. S. May

Francis P. McCarthy

Sylvester F. McKeen

H. Morrison

Benjamin Parvey

H. F. R. Watts

NORFOLK SOUTH

Charles S. Adams
William G. Curtis
George V. Higgins

PLYMOUTH

Leon A. Alley
Thomas H. McCarthy
J. J. McNamara
George A. Moore

SUFFOLK

A. E. Anstin
Gerald Blake
W. B. Breed
Charles S. Butler
David Cheever
R. C. Cochrane
Fletcher H. Colby
William P. Cross
Lincoln Davis
R. Fitz
C. Frothingham

G. L. Gately

Robert B. Greenough

John Homans

H. T. Hutchins

Roger I. Lee

Francis W. Palfrey

W. S. Parker

G. P. Reynolds

William H. Robey

G. C. Shattuck

Warren R. Sisson

Louisa Paine Tingley

Harvey P. Towle

S. Warren

F. A. Washburn

Conrad Wesselhoeft

WORCESTER

J. O. Austin
Walter P. Bowers
Phillip H. Cook
George A. Dix
George E. Emery
David Harrower
E. L. Hunt
Edwin R. Leib
A. W. Marsh
J. W. O'Connor
Edward H. Trowbridge
F. H. Washburn
Royal P. Watkins
S. B. Woodward

WORCESTER NORTH

Thomas R. Donovan
Francis M. McMurray
H. R. Nye
Walter F. Sawyer

The meeting was called to order by President Robey, who asked for the reading of a summary of the minutes of the last meeting. The Acting Secretary stated that the records of the last meeting were then in press and read an abstract. Since there appeared to be no errors or corrections noted by the Council the chair declared the records approved.

President Robey then stated that one of the chief objects of the meeting was to consider the report of the House of Delegates of the American Medical Association made at its Special Session in Chicago on February 15 and 16 1935. He stated that Dr. Cody had prepared a report

of that meeting Since Dr Cody was not able to be present, the Secretary read Dr Cody's report

AMERICAN MEDICAL ASSOCIATION
HOUSE OF DELEGATES
Special Session
February 15, 1935

In compliance with the request of the Board of Trustees the House of Delegates was officially called by the Speaker to convene in Chicago on February 15 and to remain in session recessing from day to day until its deliberations were concluded

The business would be limited to the consideration of the social and economic policies of the Association as related to pending and proposed legislation to sickness insurance and to other matters which might be suggested by the Board of Trustees

One hundred and eighty-eight delegates were present when the House was called to order Five were present from the State of Illinois

The first action was taken through the Chairman, Dr. T. W. Higley, who presented a statement concerning the business of the House. Questions were submitted to the Chairman. The discussion by a large number of delegates followed When all had been heard the Chairman appointed a committee of seven delegates to consider the statement of the Board of Trustees, the suggestions for discussion and the suggestions and motions offered by individual delegates were referred The committee went into session, heard several delegates and on the following morning submitted a report to the House After discussion this report was referred back to the committee when amendments were made in accordance with motions by the House On the afternoon of this day the report of the reference committee was again read and adopted by the House without dissent

This report has appeared in the columns of our Journal and the current issue of the *American Medical Bulletin*

The minutes of the Special Session were published in the *Journal of the American Medical Association* of March 2 With such wide publicity it is omitted here

For the Delegates

Respectfully submitted

EDWARD F. CONY

Dr Charles D. Mongan of Middlesex South moved the adoption of the report of our delegates to the House of Delegates' Special Meeting February 15 and 16, 1935 as read by the Secretary The motion was seconded There appeared to be no discussion and when put to a vote the motion was carried

Dr Robey then stated that the next item of business was a resolution to be offered by Dr Tighe Dr Michael A. Tighe of Middlesex North stated that the Public Relations Committee at its meeting the week previous, considered the matter of the resolution adopted by the American Medical Association on February 15 and 16 last and voted unanimously to approve the action of the House of Delegates as recommended that this Council do likewise He stated, "You have approved the House of Delegates, and thus we stop to whatever program the Committee might follow." He

Committee wished to serve the Society and to do so it must know the Society's wishes and attitude toward certain principles He stated, "In the event that this Council saw fit to adopt and ratify, as it has this morning, the resolution passed in Chicago, the Public Relations Committee had formulated a plan whereby we may do our part here in Massachusetts to support the stand of the American Medical Association, and, with your permission, Mr President and Councilors, I should like to read the following

"The Public Relations Committee of the Massachusetts Medical Society, being aware that there is a well organized effort favorably to influence public opinion through the instrumentality of newspapers, popular magazines, and the radio in the matter of compulsory sickness insurance, and being aware that such compulsory sickness insurance is not in the interests of public good urges the Council of the Massachusetts Medical Society to approve a plan whereby the evils of compulsory sickness insurance may be brought to the attention of the public This plan seeks to disseminate knowledge of these evils through the press, through talks over the radio, talks to luncheon groups, service clubs women's clubs men's clubs, labor and sociopolitical organizations This plan will also acquaint the public with the studies which the Massachusetts Medical Society, through its Public Relations Committee has entered into relating to the adequacy of medical care in Massachusetts This plan also indicates that, if this survey shows the care to be inadequate, the Massachusetts Medical Society will formulate, offer and sponsor a remedy"

"Mr President I move the adoption of the recommendation of the Public Relations Committee.

The motion was seconded by Dr Mongan. In discussion Dr Mongan added to Dr Cody's report He stated that the attendance at the House of Delegates at the recent meeting, was the largest in the history of the organization The representation from all the states was full as was also the representation from the sections. Such state presidents or secretaries as were present in Chicago were likewise invited, as were representatives from the Army, Navy and the Public Health Service The discussions were conducted with a great deal of earnestness, and much interest was manifest When the report was brought in and was discussed very thoroughly the amendments and suggestions were made in good spirit by the reference committee and the amended report was finally adopted Dr Mongan stated that he believed the opinion expressed in the report should be given great weight by the Council Dr Mongan had been a

negative one. He alluded to a number of positive contributions in the past. He believes that now we have come face to face with a medical crisis and that it is one of the concerns of the medical profession in Massachusetts. He said, "The President and his Economic Security Council recognize that fact when they say they will give you a law and they will supervise the law but each state must make its own laws and I suppose the states are to make their own laws under the conditions such as they find in their states."

He stated that shortly there will be reported in Congress a skeleton of the President's economic security plan but for the present this will cover only old age pensions unemployment insurance, with perhaps something on public health, and something on the care of maternity cases and crippled children. The scheme will carry with it payroll contributions and will not become active until 1937. He stated that the national government will not distribute funds under any of these laws until 1942. The crisis before us is not concerned with the national government activities. Next he referred to the compulsory insurance bill. He said that labor did not seem to be very warm on the subject and if the medical profession was willing the representative of labor stated that he would ask the legislative committee to recommend the creation of a commission to study the whole subject in Massachusetts. Therefore, he believes that our concern will be to make proper representations to the commission when it is appointed.

Dr. Mongan believes that adequate education of doctors and of the public must be undertaken in the near future. He believes that Dr. Tighe's motion offers a way to bring this about. He also referred to the survey now being conducted by the Public Relations Committee to determine the adequacy of medical care available to the citizens of Massachusetts. He believes that the results of this study and the educational campaign contemplated by Dr. Tighe's motion can reach not only the doctors but all kinds of organizations and service clubs and can present the matter impartially. The cooperation of the medical profession is essential. He pointed out the advantages for such a movement in this State because of the compactness of our organization and the high standard of medical practice which obtains here. He stated that he thought it was the duty of the profession to assist in the proper presentation of the subject matter to the public and that if this was properly done we could expect the proper kind of legislation which would preserve not only the rights of the profession but the rights of every individual and give a medical service which would be fitting to the Commonwealth.

In response to a request from Dr. David Cleever of Suffolk the motion was reread. In

the discussion Dr. John Homans of Suffolk raised a question as to the wording of the resolution which to him did not sound impartial. He stated, however, that he approved of the ideas involved.

Dr. Tighe then spoke further in explanation of the wording of the resolution and pointed out the necessity for local action by the states under the resolutions adopted by the House of Delegates at its recent meeting.

Dr. Philemon E. Truesdale of Bristol South felt that the resolution expressed a desire and an intention on the part of the medical profession to gain the confidence of the public and to retain the responsibility for the care of the sick by the medical profession and not by other agencies.

Dr. Francis P. McCarthy of Norfolk asked for further information regarding the compulsory sickness insurance bill which had been proposed in the present Legislature.

Dr. Mongan answered Dr. McCarthy's questions at some length. In response to a second question regarding national legislation Dr. Mongan quoted from an article in the magazine *Fortune* for March, and further from a current newspaper. The quotation was as follows:

"Estimates by Secretary Morgenthau indicate that aggregate collections during the first year of the tax would amount to \$622,000,000. Collections would reach \$18,683,000,000 in 1950 when the maximum tax would be in effect, and would continue piling up until a peak reserve of \$50,093,000,000 would be reached in 1980, under the bill as now drafted."

Dr. George L. Schadt of Hampden asked if there was anything in the proposed bills that makes it mandatory and compulsory for the medical profession to serve the insurance boards. At the President's request Dr. Mongan replied that there was no compulsion but that since many physicians are feeling the pinch of the times, they are willing to do most anything and he mentioned a society recently organized in Brooklyn and now including six hundred doctors which is definitely out for the socialization of medicine.

Dr. Walter A. Lane of Norfolk raised a question regarding the program contemplated by Dr. Tighe's motion. This referred to the sponsoring of the radio broadcasting and the newspaper articles. He felt that the responsibility should be definitely placed by the Council so that there can be no question of a lack of authority by which the work could be accomplished. Dr. Lane also questioned the advisability of taking quite so broad a stand, as has been offered without further discussion.

Dr. J. Forrest Burnham of Essex North attempted to clear the atmosphere by further explanation of the probable attitude of the administration in Washington which he believes

to be to delay any action on sickness insurance to a later date

Dr Robert B Greenough of Suffolk, a member of the Medical Advisory Council to the Secretary of Labor in connection with President Roosevelt's Committee on Economic Security, spoke informally about the activities of the Medical Advisory Council. He stated that the members of this Council were called as individuals and not as representatives of different organizations. The first meeting was held in Washington in November at which time the situation was explained to them. It appears that in July, 1934, President Roosevelt appointed a Cabinet Committee on Economic Security and authorized this Committee to expend Federal funds and to organize a technical committee. This technical committee was divided into a number of sections, one to study old age pensions, one unemployment insurance, one public health service and finally one group to study health insurance. At the first meeting, the technical committee to study health insurance submitted for discussion a general list of statements concerning health insurance. These statements were discussed by the Advisory Council. The purpose of the Advisory Council was to act as advisers to the technical committee in connection with the plans which the said technical committee had been asked to prepare and submit to the Cabinet. The Council was disbanded after two days of continuous session but met again either in the latter part of January or the early part of February. At this meeting a somewhat more definite plan was submitted to the Advisory Council and again items in it were discussed. It should be understood that at no time was there a vote taken by the Advisory Council. The opinions of individuals were recorded and it was understood that these opinions were to be given consideration by the technical committee in the preparation of its report to the Cabinet Committee on Economic Security. The Council was again dismissed and it was intimated that they would probably not be called together again. The members of this Advisory Council were not at liberty to discuss or to reveal the matters which came up for discussion since all publicity was to come from higher authority in order to prevent confusion and misunderstandings. Dr Greenough stated that he believed that the Committee on Economic Security has received a first draft of the report of the technical committee which considered health insurance, that this has been studied and that the legal advisers of the Committee on Economic Security have been asked to put the material into form so that it may be presented for legislative action after such a decision is finally reached. According to Dr Greenough, the rather widely expressed opinion in Washington was, as Dr Mongan intimated,

that no action will be taken this year and, since the plan is said to involve action by the individual states and since only eight Legislatures meet next year, it is improbable that there will be any action in Washington in the near future. Dr Greenough feels that the opinions expressed to the technical committee by the Advisory Council were helpful in eliminating some of the possible dangers generally recognized to exist in health insurance as it has been introduced in other countries. Dr Greenough expressed the hope that, whether or not the matter is presented for legislative action by Congress, the form of the report of the technical committee to the Committee on Economic Security may be published, since in his opinion this action would do much to set our minds at rest. Dr Greenough then commented upon the motion submitted by the Committee on Public Relations stating that there might be some fallacy in Dr Homans' deduction concerning the wording of the motion. Yet he believes the wording of the motion would be strengthened by stating that the Committee feels that a thorough investigation is needed and that when and if a lack of adequate medical facilities is found to exist in Massachusetts, the Committee will be prepared to consider all possibilities and to make recommendations to the Massachusetts Medical Society as to the best procedure. Dr Greenough's remarks were closely followed by the Council and received considerable applause.

In response to a question by President Robey for closing remarks, Dr Tighe stated that the Public Relations Committee, after thorough consideration, has prepared a plan to deal with the situation. Such a plan cannot be entirely definite until the survey is completed. He stated that the publicity should be sponsored by the Massachusetts Medical Society. That is why the general plan is presented. He stated that the Committee on Public Relations was aware of the delicacy of this phase of work and that he was confident that before the final plans would be put into operation, care would be taken to avoid any infringement of the code of ethics. He stated that, while the idea of a subcommittee on social legislation and insurance had been in his mind from the beginning, the importance of creating such a committee was such that it should be approached with the utmost caution and should be done in close cooperation with the Committee on Ethics and Discipline. Dr Robey then put the question and the motion was carried without dissent.

Dr William M Shedden of Suffolk then presented the report of the Committee of Arrangements. (See Appendix No 1)

Dr Elmer S Bagnall of Essex North commented upon the report which he believed to forecast one of the most interesting meetings that the Society has held. He felt, however, that it might

not discuss House Bill 756 upon which a great deal of work had been done but that he would make a report on this at the Annual Meeting.

Dr. Edward H. Trowbridge of Worcester presented some suggestions and moved that they be referred to the Committee on Public Relations for a subsequent report to the Council. The motion was seconded and was carried. (See Appendix No. 4.)

There being no other business to come before the Council, it was moved to adjourn. Adjournment took place at 1:38 P.M.

ALEXANDER S. BEGG,
Acting Secretary

APPENDIX NO. 1

REPORT OF THE COMMITTEE OF ARRANGEMENTS

APRIL 3, 1935

Mr. President and Members of the Council

I feel that the success of the coming meeting depends in no small part upon the enthusiasm that is present or is generated in the various District Societies. As you know the average number that has attended our Annual Meeting in recent years is approximately 1000, only about twenty per cent of our total membership.

Associated with me this year is a Committee of Arrangements that is extremely efficient and hard working and it is our ambition that this shall be in no way just another Annual Meeting but that it will justify its existence in every sense of the word.

To this end letters urging attendance at the meeting have been sent to 125 new Fellows. Messages have also been sent to the Presidents of the various District Societies asking that they present to their members the benefits to be gained by each Fellow and by the local group as a whole attending our Annual Meeting.

The scientific exhibits at this year's meeting already number more than twenty-three subjects and more than thirty exhibitors. Although all the details of each exhibit are not yet available it is apparent that many of them will be of the highest merit.

The effort this year is to have striking exhibits comprising material which is easily understood such as diagrams, models, photographs and motion pictures, in addition to exhibits of actual apparatus and technique. One of the striking features will be the exhibit on arthritis prepared by a distinguished committee under the leadership of Dr. Robert B. Osgood including rheumatic fever, the various types of arthritis and the social aspects, results and methods of treatment of the various arthritic conditions. Continuous motion pictures will be shown in this exhibit which will occupy the entire space used for all scientific exhibits at the meeting two years ago.

Four members of the Lahey Clinic have developed some very interesting exhibits on thyroid disease, tumors of the lungs and carcinoma of the colon and rectum.

Another notable feature this year will be the location of many scientific exhibits in close proximity to the commercial exhibits rather than the usual segregation of the scientific exhibits to a seldom frequented location.

On Monday morning there will be a continuous series of motion pictures of general medical and surgical interest.

Medical Clinical Meetings have been arranged for Tuesday morning and Surgical Clinical Meetings for Wednesday morning. Both clinics are to be held at the Massachusetts General Hospital. It is hoped that the attendance will be large.

Forty-two commercial exhibit booths have been sold. The Society will receive a total of \$2950.00 in payment for these booths. This is in excess of \$500 more than we have ever received from the sale of commercial booths.

In fairness to the exhibitors, I would ask that you suggest to your local societies that they visit these exhibits. I think it is perhaps not sufficiently realized that the income from them is a very considerable factor in the financial support of our Annual Meeting.

We have received reports or editorials regarding their programs from the Chairmen of all the Sections. There has been this year an endeavor on the part of the Chairmen to present programs which will appeal primarily to the general practitioner and his problems.

A special effort has been made to receive and entertain the delegates from the New England States. One of our number has been assigned to receive these men. Letters of welcome have already been written to these delegates and steps are being taken to provide for their comfort while in Boston.

A feature not before attempted in Boston has been arranged this year in the form of a well-organized Ladies Committee. Headed by Mrs. William Robey, this Committee has been very active and has planned a very attractive program. Almost a year ago Mrs. Robey arranged for a tea at the Isabella Stewart Gardner Museum.

For Tuesday evening during our annual banquet the Ladies Committee has arranged a supper at the Junior League and during our last day of meeting Wednesday a trip to Concord and a luncheon at the Concord Country Club with visits to points of interest.

WILLIAM M. SHEDDEN, *Chairman*

APPENDIX NO. 2

The Committee on Permanent Home of the Massachusetts Medical Society respectfully submits the following report:

The note of the Boston Medical Library for \$24,703.29 came due on April 1, 1935 and the treasurer of the Library requested a renewal as they were not in a position to pay off the principal of the note. After consideration between the members of your Committee and officers of the Medical Library it was agreed that a payment of \$3,032.29 should be made on the principal, thereby reducing the note to \$24,500 and the note was renewed for one year to April 1, 1936 at the same rate of interest, namely 4½ per cent. Furthermore it was understood that the Boston Medical Library would be in a position to reduce materially the principal of the note before April 1, 1936.

Respectfully submitted

CHARLES G. MIXTER,

Secretary pro tem

Committee on Permanent Home

ture although it came very close to passing. He is of the opinion that this added item would be of great advantage to the profession and that its proponents feel that it may even yet be brought out and passed if it has the support of the Massachusetts Medical Society. He suggests that Dr. Robey as President might address a letter to the Speaker of the House expressing the opinion of the Society and that this would have a favorable result.

Dr. Robey stated that naturally he would not send such a letter without the consent of the Council.

Dr. Balch then moved that the President prepare and sign a letter similar to the one now submitted by Dr. Balch. The letter was read and the motion was seconded. (See Appendix No. 3.)

Dr. F. P. McCarthy stated that this was an important matter and that it might appear to the public that the profession was attempting to be placed in rather an exclusive position. He stated that, while in his opinion a statute of limitations of two years was too long, he would much prefer to have the Council let the matter rest and leave the law as it now stands and perhaps at some future date make some effort to compel patients to put up a bond in order to prevent spurious suits. In such an event it would appear that the profession is perfectly willing to allow a two-year period in which to bring legitimate claims.

Dr. George A. Moore of Plymouth suggested that hospitals might well be included in the list along with physicians and dentists.

Dr. J. Harper Blaisdell of Middlesex East stated that the two-year limitation or one-year limitation is a delusion and a snare. He stated that any smart lawyer can sue a physician as had happened in his case for alleged malpractice twelve years ago. It can be gotten around very simply. The patient states that ten years ago or inside the two-year limit the physician did an unlawful act and that he was not informed of this act which resulted in injury and therefore fraud was committed. It would appear, therefore, that any physician can be sued for something which occurred practically any time in the past so that as a practical matter it makes very little difference whether the limitation is one or two years.

Dr. F. P. McCarthy stated that he knew that even if an x-ray burn developed in two years or the recognition developed two or three years after the treatment, the two-year limitation does not eliminate the suit. He also stated that if a sponge is left in the abdomen and is not discovered for two or three years, suit is not prevented. He also stated that if the case were a child suit might even be brought twenty-one years later.

The question was then asked for and upon a standing vote it appeared that the motion had been adopted.

Dr. W. A. R. Chapin of Hampden next spoke on the matter of the activities of the physicians of the State in legislative matters. He felt that the legislative program had not received proper support from various district societies. He stated that in his district the physicians had taken the matter seriously and that leading men such as Dr. Sweet had written many letters to leaders in industry, etc., asking for support of House bill 756. There was another bill in the Legislature which might serve to indicate the attitude of legislators toward this bill and upon this other measure he stated that, out of fifteen legislators in his district, thirteen voted against the bill. He stated that he understood that some other districts had done excellent work but he felt that some districts had been rather lax. He did not feel that it was fair that this should be so. He believed that when the Council voted to take a stand in any legislative matter, all districts should make every effort to support it. He believes that the influence of the physicians is an important one and, if it is properly exercised, much can be accomplished.

Dr. F. P. McCarthy referred to the meeting of the Council in Worcester at which time a proposal was made to enlarge the Legislative Committee so that each section would have representatives and be responsible to the local sections. He stated that the remarks of the last speaker emphasize the value of some such procedure and expressed the hope that when the committee, which has been appointed to-day, considers the question of legislation it will give due regard to this phase.

Dr. Samuel B. Woodward of Worcester: "Mr. President, I simply want to say that the speech from the western part of the State warms the cockles of my heart. For nearly twenty years I have almost every year tried to induce the members of this Society to support a certain bill—without success!"

Dr. Tighe spoke of the activities of Middlesex North and told how their Legislators had been entertained at dinner and how the bills were discussed. He stated that he believed the Legislators were glad to meet with the physicians and that they had expressed their thanks for the help which the district offered them in settling some of their legislative problems.

Dr. Robey stated that he was glad Dr. Chapin had brought the matter up and that, from the Society's office and from the committee on legislative matters, an attempt had been made to interest all of the members of the Society. He expressed the belief that the work this year had been fairly successful. He stated that he would

the symptoms or the severity of the injury. There apparently is a strange psychology not only among roentgenologists but probably among those in other branches of medicine and that is the difficulty for one to remain unbiased where one encounters either in the passing of an opinion or in the necessity of controverting the opinion of the other and it is possible and probable that each individual builds up for his own case all the positive factors as well as the negative factors in the effort to prove himself right in court. This is unquestionably natural. It is only when positive opinions are based on unsound premises or on conditions which rarely if ever exist in the human anatomy that we encounter difficulties. It frequently happens that when a patient has sustained a fall from a considerable height and sufficient to cause an injury to a transverse process or a spinous process or to whatever part in question, that a diagnosis is passed of injury as the result of the alleged accident.

One of the most important phases of our work which causes trouble and an excessive amount of expense to the insurance companies is brought about by our written reports and the careless use of phrases, sentences or the misuse of words. This criticism I believe is just of our particular specialty and also of those in the medical profession generally. I do not believe this applies to a group of men such as those here to-day because they have been trained to be exact. However, recently I attended a hearing at which one of our medical examiners in his routine work passed certain opinions in his report of the autopsy and then on the stand was obliged to change these opinions because of the facts in the case. It was of no particular moment, but it illustrated to me as I listened to the testimony that if he had visualized his future appearance in court he would have worded his report differently and therefore would not have been obliged to change his position even to a slight extent. I have had considerable experience and I have noticed that in a routine report of a case where there was no medicolegal aspect to the case and there was no effort to build up the results of an injury, the following phrase might be used, "some hypertrophic arthritis found." In a particular instance recently, the foregoing phrase was included in a report of a spine of an elderly person who had been in an automobile accident. This term "hypertrophic arthritis found" had been used by a competent x ray man. The orthopedic man on the case reported hypertrophic arthritis and the lawyer in trying to build up the case attempted to point out that at least some of the symptoms could be accounted for by the excessive amount of hypertrophic arthritis and that the injury aggravated this very marked hypertrophic arthritis. I did

not see the x ray plates until I was on the stand and I did not have the opportunity of reading the actual report, but I testified that in my opinion there was not even the usual amount of hypertrophic change that should appear in an individual of this age. Therefore, my testimony differed from that of the other roentgenologist, who is a good friend of mine, and the orthopedic man, and this difference of opinion made it very unpleasant for all of us and subjected me to some criticism. All this came about because the term "hypertrophic arthritis" had been loosely used.

We experienced another difficulty as a result of our reports when we stated that "no positive evidence of fracture of the skull was found." It seemed to us that to the lay mind this was a positive statement that the x ray was negative for fracture, but it was not so with the lawyers. I was kept on the witness stand for one hour in an effort by the attorney to make me admit that I had a mental reservation that there might be a fracture of the skull. I can see better now than I could then that there might be some question of a mental reservation. As a result of this experience, we have come to have our reports read "no fracture found by the x ray." That leads me to say that as time goes on we use as few words as possible in our written reports. Even with this effort to have simple wording and straightforward opinions and so far as possible to the point at issue, we are met with criticism because we are in contrast with other laboratories whose reports are lengthy and yet when you sum up the reports they are pretty much the same as ours.

I doubt that you men, or even the medical profession at large realize the tremendous increase in the number of roentgenologists in the last ten years not only in our city and state but in the country generally. Those of us who have been in the specialty for many years realize this more than the average medical man. Back in 1916 after the war started, we had recognized throughout the country only one hundred and fifty trained men with a background of reasonable experience. Immediately we were called to train one thousand men for the first army. Since then all the large hospitals in the country have special services for roentgenology and they are training their internes for this specialty in the fundamentals of x ray but they lack the experience which comes only as a result of years of practice. There are many small hospitals in the smaller cities and towns of our commonwealth and throughout the country generally which are first-rate hospitals and are equipped with efficient and modern apparatus but not in many instances with trained roentgenologists. These hospitals are perfectly willing either through necessity or

APPENDIX NO 3

April 3, 1935

Honorable Leverett Saltonstall
Speaker of the House of Representatives
State House
Boston, Massachusetts

Dear Mr Saltonstall

Your Committee on Rules has pending before it a bill which limits the bringing of malpractice actions against dentists and doctors to one year

Seventy five per cent of the malpractice suits end with favorable verdicts for the doctors. Most of the suits brought are groundless ones and a great number of them are brought after the doctors or dentists try to collect their bills.

Defendants in automobile tort cases are protected after one year. Is there any reason why doctors and dentists, who do so much good in their communities, should have claims brought against them up to the second year of the time that the services were rendered?

May we urge you as Speaker of the House to help us in the passage of this Bill?

Very truly yours,

(Signed) WILLIAM H. ROBEY

APPENDIX NO 4

Suggestions from Dr Edward H Trowbridge of Worcester and referred to Committee on Public Relations by order of the Council

"That a committee of three—be appointed by the President of the Massachusetts Medical Society to study into the rights of the members of the Massachusetts Medical Society and their relations with the Workmen's Compensation Board

"Considerations 1st Should a lay board pass on the so called reasonable charges for services rendered by any physician or surgeon in industrial cases?"

"2nd Under what law or right does the Workmen's Compensation Board fix \$50.00 as a reasonable charge for hernia operations?"

"3rd If fees for visits and operations are to be established,—let the Massachusetts Medical Society fix such reasonable charges and not a lay board

"4th That a physician and surgeon shall be associated with the Workmen's Compensation Board to render assistance in determining the reasonable charges

"5th That a committee of three—appointed by the President of the Massachusetts Medical Society—be empowered to fix such reasonable charges as will apply to all members of the Society in treating all industrial cases"

MASSACHUSETTS MEDICO-LEGAL SOCIETY

RELATIONS OF ROENTGENOLOGY TO
MEDICOLEGAL PRACTICE*

BY ARIAL W. GEORGE, M.D.†

WHEN I received the invitation from your President, Dr Gay, to discuss before your Society the relations of Roentgenology to medicolegal practice I felt, as I have so many times in the past, that because the subject was so extensive the presentation of such a paper would be very difficult as there was no beginning or ending. Those of us who have had any reasonable experience, as I have had in the past twenty-eight years, not only in the private practice of roentgenology but a very substantial part of this practice being industrial and medicolegal work, know that through these years we must have gained a certain practical knowledge and have by contact at least learned many things about the use of the x-ray. More than the importance of the x-ray, we have learned some of the difficulties one encounters in the use of the x-ray in medicolegal work. With this thought in mind and with your permission, I would like to discuss with you the many phases of this work and especially to consider some of the serious criticisms that are continually being made, perhaps a little more at the present time than in the past years particularly in the use of x-ray in industrial and medicolegal work.

The industrial and medicolegal work are identical, at least the end results are. In one instance you have a hearing before a commissioner and in the other in a higher court either before a judge or jury. I believe that what the roentgenologist needs in this type of work first of all is, if I may be permitted to use the term, mental honesty in approaching the study of the case. I am not particularly interested in the moral aspect of honesty for the moment, but I am interested in it from the practical side. Strange as it may sound, I think if a man is really going to be selfish he will be much better off to be mentally honest because this work becomes treacherous when you have a bias either for your own particular case or in your opinions expressed either written or in court against your colleagues.

I have noticed that the average roentgenologist is not well trained, nor has he had an opportunity to have that training which is obtained only through years of practical experience. In his study of a case, he puts his whole effort into finding some degree of pathology and he believes that if he is called upon to make an x-ray he must find something definitely wrong with the part under examination. You men must be aware that many x-rays are taken where no evidence of any abnormal or pathological condition is demonstrated from the x-ray regardless of

*Read at the Fall meeting of the Massachusetts Medico Legal Society Boston October 3 1934

†George Ariel W.—Roentgenologist Jordan Hospital Plymouth. For record and address of author see This Week's Issue page 945

dence may be produced in the film by position or angulation and this distortion shows changes in the appearance of the vertebrae or any other part which are most difficult to understand. I have just recently been in court where I felt that the appearance of the film at issue was due to distortion and the position in which the examination was made and not the result of the alleged injury, but I had great difficulty on the witness stand where positive statements are made in bringing in any evidence of a negative nature despite the fact that the positive evidence was entirely erroneous.

Most of us have lived through the days when the term "railway spine" was so commonly used and then later the "sacroiliac" disturbance which became so popular and which was so costly in medicolegal work. I have no recollection of ever seeing a case of so-called sacroiliac dislocation which was the result of a minor injury such as stooping or lifting. On the other hand I have seen cases where there had been severe injury and where the sacroiliac might be separated half an inch and yet the individual had none of the classic symptoms of so-called "sacroiliac" dislocation. Only yesterday I spent practically the entire day on the witness stand and part of this forenoon in an effort to prove that what one of my friends, an x ray man, demonstrated as an abnormal condition was simply a normal process of the bones.

Another interesting fact that I have observed in our practice is that during the past few years it has become rather routine for us to be asked to go to the offices of other roentgenologists or to the x ray departments of some of our hospitals to see the films made of a case in litigation. Strange as it may seem I should say that eight out of every ten times that I am asked to see a set of films I differ either definitely or in some detail from the report given by the individual who examined the case. It is relatively simple in studying an x ray to make a positive statement and have facts to substantiate your opinion whether you are right or wrong, but it is definitely difficult to disagree with a positive opinion and have facts that will prove your contention.

I have already spoken of the efforts of x ray men to play the part of clinicians. In my opinion if a roentgenologist goes into a case in which he is also clinician he will attempt by taking an x ray to confirm his findings of some pathology at a given point. I have seen this done time and again and the method is rarely successful.

I believe one of the most important factors we have to consider in x ray work is the time element relative to injury. This is of tremendous importance in determining the age of the

injury and whether the alleged injury resulted from the given accident. I will illustrate this briefly. I had an opportunity of seeing a fracture of the lamina of the fourth lumbar vertebra with a dislocation of the fourth lumbar anteriorly. I asked when the injury occurred and I was told that the injury occurred in the morning and the x rays were taken that afternoon. In studying the film, I found that the lamina showed reactionary bone changes about what would seem to be a fracture. Naturally, I felt definitely certain that this fracture was not the result of the alleged accident of that morning. The patient had sustained a fall sufficiently severe to have caused a fracture and dislocation of this vertebra, but I was quite certain and definite in my report to the insurance company that these changes were not the result of this alleged accident. Eventually, the case came to trial and the individual a boy of twenty-three, received a rather large verdict. A year later when I was in the same court, the plaintiff's lawyer said to me that he had something very interesting to tell me regarding that trial of "so and so" last year. "After that trial," the lawyer said "I found that this boy, when twelve years of age, was running down the street, and caught his toe in the root of a tree and fell. He was taken to the hospital and kept in a plaster cast for two years." That seemed to me rather good and definite proof that the change seen in the spine occurred at the time of that accident and not on the date of the alleged accident. One observation which I have made which may be open to question is that when you get things like fracture of the laminae and dislocations in a child under puberty you find very little bone reaction and possibly the line of fracture will be seen through life. If the same type of injury occurs in an individual of twenty-five or thirty-five, you will find more marked changes or callus formation.

In the study of x rays in medicolegal practice, I find the time element relative to injury and also to disease which includes tumors alleged to be the result of trauma to be of the utmost importance. A simple illustration of this is a case where a man had an injury in 1922 and another injury in 1930. The case was put on service in a hospital where one of the medical directors of a large insurance company is in charge. An x ray was made five weeks after the second injury. The physician, with all honesty of purpose, felt that the fracture was a result of the injury in 1922. When the x ray report of 1922 was investigated, it was found to be negative relative to the vertebrae. In this instance it happened that I was on the plaintiff's side of the case. The one thing that bothered me was two definite spurs between the first and second lumbar vertebrae making

otherwise to take one of the general practitioners and trust and hope that he will be able to handle the situation. It does not work out well. The orthopedic man by the nature of his work assumes the responsibility of passing opinions on the x-ray work. I have always been opposed to this, principally because of the experience I had in Germany. I went over to learn something about gastrointestinal work. I found it was the clinician who was making these studies and passing the opinions. He was ninety per cent an internist and ten per cent a roentgenologist. I feel that the same is true with the great majority of our orthopedic men, they are ninety per cent clinicians and ten per cent x-ray men. I am certain that in a reasonable percentage of cases the results are not satisfactory to the patient and certainly do not prove generally satisfactory to the medicolegal practice.

One of the great stumbling blocks in the proper interpretation of x-ray films for court work seems to be the misinterpretation of congenital anomalies. It was my good fortune to spend eight years in the Department of Anatomy at the Harvard Medical School with Dr. Thomas Dwight. I have always considered this association to be one of the greatest and most wonderful experiences of my medical career. Some of you men here to-day were students of Dr. Dwight's. He, in turn, was a student of that great physician, Dr. Oliver Wendell Holmes. I do not believe that up to the time of his death there was a greater authority on anatomy than Dr. Dwight. As I said, I had the privilege of spending eight years in close contact with him in the study of congenital anomalies of the skeleton, particularly those of the hands and feet. We would take the hands and feet of cadavers and x-ray and study them. Studying the actual specimen gave us a great deal of information. I thought that, after these eight years of intensive study, I had seen every possible anomaly of the hand and foot. Yet I am frank to admit that to-day, possibly from lack of memory, we see conditions which are not familiar to us. We are, however, certain of one fact and that is that we are not applying any pathological significance to these anomalies.

The following report recently received from one of our large hospitals indicates the importance of these congenital anomalies:

"X-ray examination of your patient included the lumbosacral and sacroiliac spine. The x-ray shows a transitional left lateral lumbosacral articulation and a deficiency of the laminae of the first and second sacral segments on the left side producing an unusual type of spina bifida occulta. The spinous processes of the fifth lumbar vertebra appear to dip into the recess in the upper sacrum. The sacroiliac joints are negative."

In viewing these films, I found no evidence of a spina bifida. In fact at the time, I made the statement that it would be an unusually good film to reproduce for use in a textbook as a normal spine. In other words, the minor congenital variations reported in this case were built up to the point of calling them a spina bifida. In private practice, this would do no harm, but in a tort case or an Industrial Accident Board case or a case to be tried before the higher courts it leads to difficulty. The patient gets the report and immediately turns to a doctor and asks what it is. Naturally, the doctor familiar with this change in the vertebra says that it is a rather serious condition. From that point on it goes to the lawyer who builds up this phase. He studies the anatomy and the clinical side of the case. By the time the case reaches the court, you have a serious condition to contend with, and the entire opinion and report was erroneous and untrue.

Another term which leads to difficulty is "incomplete spina bifida." A series of cases was described by one of the men at the Mayo Clinic. This work was published and the use of the term began to appear not only in industrial work but in medicolegal practice. It was used as a definite clinical and pathological entity and in the large percentage of cases it is nothing more or less than any individual might have with or without injury.

I have tried to illustrate just briefly how careful one must be in the use of terms which have a clinical or pathological significance. I am frank to say that x-ray men are not so careful about the use of words as they should be and considerable criticism is brought about by the careless interpretation of films and the careless wording of our written reports.

We have a rather common condition found in the cervical region to which the term "spina bifida" is applied. This condition shows a wedged-shaped, incomplete formation of one or more of the bodies. In several instances I have found in medicolegal practice that a diagnosis of fracture or multiple fractures has been made. Such a diagnosis has been made by some very prominent x-ray specialists. And yet, one knows that unless disease has occurred there are no fractures possible in this region where you get a half of a body taken away without any bone reaction or callus. One can see at a glance that these changes are congenital in origin or that one may have an injury at the site of these changes which will possibly give rise to clinical manifestations.

One of the most difficult problems we have in our work, and we see it commonly in the work of others who attempt to enter the court room with their films, is the matter of distortion of the various parts under examination. False evi-

dence may be produced in the film by position or angulation and this distortion shows changes in the appearance of the vertebrae or any other part which are most difficult to understand. I have just recently been in court where I felt that the appearance of the film at issue was due to distortion and the position in which the examination was made and not the result of the alleged injury, but I had great difficulty on the witness stand where positive statements are made in bringing in any evidence of a negative nature despite the fact that the positive evidence was entirely erroneous.

Most of us have lived through the days when the term "railway spine" was so commonly used and then later the "sacroiliac" disturbance which became so popular and which was so costly in medicolegal work. I have no recollection of ever seeing a case of so-called sacroiliac dislocation which was the result of a minor injury such as stooping or lifting. On the other hand I have seen cases where there had been severe injury and where the sacroiliac might be separated half an inch and yet the individual had none of the classic symptoms of so-called "sacroiliac" dislocation. Only yesterday I spent practically the entire day on the witness stand and part of this forenoon in an effort to prove that what one of my friends, an x ray man demonstrated as an abnormal condition was simply a normal process of the bones.

Another interesting fact that I have observed in our practice is that during the past few years it has become rather routine for us to be asked to go to the offices of other roentgenologists or to the x ray departments of some of our hospitals to see the films made of a case in litigation. Strange as it may seem, I should say that eight out of every ten times that I am asked to see a set of films I differ either definitely or in some detail from the report given by the individual who examined the case. It is relatively simple in studying an x ray to make a positive statement and have facts to substantiate your opinion whether you are right or wrong but it is definitely difficult to disagree with a positive opinion and have facts that will prove your contention.

I have already spoken of the efforts of x ray men to play the part of clinicians. In my opinion if a roentgenologist goes into a case in which he is also clinician he will attempt by taking an x ray to confirm his findings of some pathology at a given point. I have seen this done time and again and the method is rarely successful.

I believe one of the most important factors we have to consider in x ray work is the time element relative to injury. This is of tremendous importance in determining the age of the

injury and whether the alleged injury resulted from the given accident. I will illustrate this briefly. I had an opportunity of seeing a fracture of the lamina of the fourth lumbar vertebra with a dislocation of the fourth lumbar anteriorly. I asked when the injury occurred and I was told that the injury occurred in the morning and the x rays were taken that afternoon. In studying the film, I found that the lamina showed reactionary bone changes about what would seem to be a fracture. Naturally, I felt definitely certain that this fracture was not the result of the alleged accident of that morning. The patient had sustained a fall sufficiently severe to have caused a fracture and dislocation of this vertebra but I was quite certain and definite in my report to the insurance company that these changes were not the result of this alleged accident. Eventually, the case came to trial and the individual a boy of twenty three, received a rather large verdict. A year later when I was in the same court, the plaintiff's lawyer said to me that he had something very interesting to tell me regarding that trial of 'so and so' last year. "After that trial" the lawyer said, "I found that this boy, when twelve years of age, was running down the street, and caught his toe in the root of a tree and fell. He was taken to the hospital and kept in a plaster cast for two years." That seemed to me rather good and definite proof that the change seen in the spine occurred at the time of that accident and not on the date of the alleged accident. One observation which I have made which may be open to question is that when you get things like fracture of the laminae and dislocations in a child under puberty you find very little bone reaction and possibly the line of fracture will be seen through life. If the same type of injury occurs in an individual of twenty five or thirty five you will find more marked changes or callus formation.

In the study of x rays in medicolegal practice, I find the time element relative to injury and also to disease which includes tumors alleged to be the result of trauma to be of the utmost importance. A simple illustration of this is a case where a man had an injury in 1922 and another injury in 1930. The case was put on service in a hospital where one of the medical directors of a large insurance company is in charge. An x ray was made five weeks after the second injury. The physician, with all honesty of purpose, felt that the fracture was a result of the injury in 1922. When the x ray report of 1922 was investigated, it was found to be negative relative to the vertebrae. In this instance it happened that I was on the plaintiff's side of the case. The one thing that bothered me was two definite spurs between the first and second lumbar vertebrae making

almost a complete bridging between the injured vertebrae and the one below. As I said, these x-rays were taken five weeks after the injury in 1930. I realized that too short a time had elapsed for spurs to form. Spurs started to form above the first lumbar and grew more definite over a period of a year or two so that one could study them, but the two spurs between the first and second lumbar vertebrae remained the same from 1930 to the date of trial in 1934. I was questioned for a considerable length of time about these two spurs and it rather shook my confidence a little to understand quite why they should remain stationary, but fortunately for me and to my chagrin I admit, the judge saw no reason why the man could not have had these two spurs before the injury which were not disturbed by the injury. I believe this was the answer although I did not think of it as a possibility. This illustrates again the tremendous importance of the time element in x-ray work.

There is one very troublesome feature continually arising in medicolegal practice and that is the question of arthritis. Although I do not believe many medical men to-day claim arthritis of the vertebrae to be the result of injury, yet they do make a good many extravagant claims as to the aggravation of preexisting arthritis. In the earlier days in our Industrial Accident Board work we were inclined to report "extensive hypertrophic arthritis without evidence of injury." The plaintiff's lawyer would invariably ask if this condition was what the laymen called "rheumatism", and one would naturally say in reply "yes". And then the lawyer would question further saying, "Isn't it true, Doctor, that a man with this terrible rheumatic condition would be more disabled from now on than he would have been if he had a normal back?" And, of course, your answer would be "Yes".

As time went on, we began to realize that the word "arthritis" had no proper place in the interpretation of these changes commonly found in the backs of middle-aged people, especially those who have done laborious work. The term "arthritis" means an inflammation of a true joint. These spur formations or marginal lippings are commonly found, that is in 98 cases out of 100, around the margins of the body. Of course as I understand it the intervertebral space is not a true joint in the sense that it has a secreting synovial membrane. The only true joint in the vertebrae is the articular process and the one part in which we rarely find disease. And so, in our Monograph on "The Vertebrae" which was published in 1928 we used the term "hypertrophic changes". Our book was abstracted in all the various languages and there was no adverse criticism given to the use of this term. It has come now to be pretty well

understood that occupation and age have a definite bearing on the changes which occur along the margins of the vertebrae. Therefore, in our reports to-day we avoid using the term "arthritis".

I shall illustrate what I mean by the above. One of our medical directors and I were on a very important case. We had discussed the case and agreed not to use the word "arthritis". When on the stand, the medical director inadvertently used the term "hypertrophic arthritis". When his testimony was completed, it looked as though he had voluntarily contributed to the plaintiff's case by the use of this term because the lawyer broke the term down to mean inflammation and by adding the word "hypertrophic" he further complicated the case.

When I took the stand I decided to use the term "hypertrophic changes" in view of the other physician's testimony. When the question of aggravation arose, I said that hypertrophic changes meant no more or less than the production of normal bone and normal bone could not be aggravated or produce symptoms.

The foregoing is a very simple illustration of what is happening continually and furnishes the opportunity for false premises for changes which occur in the vertebrae.

I have several films here that are in a sense illustrative of what we are talking about. I am going to show them to you. One condition of which I wish to speak is spondylolisthesis. This condition is causing a great deal of discussion throughout the country. It is a subject of great importance in medicolegal work because it is commonly and frequently found. A careful survey of the medical literature of the world shows that it is a very occasional case of spondylolisthesis which is the result of an alleged injury. I would go so far as to say that in ninety-nine per cent of the cases it is not the result of an alleged injury, but the result of a congenital defect of the laminae in some degree of development through childhood.

Another interesting condition which causes considerable difficulty is the bipartite patella. The x-ray men as a rule do not seem to realize that you can have this condition. Invariably, they report a fracture. The only thing we can do to prove that it is not a fracture is to give the case sufficient time to see whether callus forms and sometimes you have to wait a long time. A bipartite patella will never show callus. It is, however, a condition which is easily interpreted as a fracture.

Apropos of this same condition, we find in the spine, commonly at the level of the third or fourth, usually the fourth lumbar vertebra, the remains of an epiphysis, which looks like a chip fracture. When an x-ray man or a hospital laboratory reports this condition to be a fracture

of the vertebra, perhaps in the nature of a chip fracture, it is very difficult for us to go into court and say that it is not a fracture because the x ray evidence is characteristic of a fracture. We have tried with these cases to wait six months or a year and then x ray them again. If the x ray appearance of the vertebra shows no change, we know definitely that it is the remains of an epiphysis. If on re-examination we find callus, we know that there has been a fracture. You can see in the x ray a dense bone on each side of the sulcus, or on each side of the fracture line. This dense bone cannot occur in three or four days' time. It takes a long period of time.

I have gone over rather hastily some of the problems and conditions that are important to us, and I don't want to take any more of your time. I hope that the discussion will open up some points that will be of interest and help to us all. I thank you.

DISCUSSION

DR. CANNAN: Did you say that under twenty-one these fractures would not be found?

DR. GEORGE: I should say fifteen or sixteen. What I would call the average puberty and not for the special bones but for the average.

SPEAKER FROM THE FLOOR: I would like to ask Dr. George whether he considers a negative x ray of the skull positive evidence of no fracture present.

DR. GEORGE: No, I do not consider any x ray or any series of x rays to be negative. That is as far as we can go. The difficulty with skull x ray work is that we, by practice, don't take all the various positions. We are trying to take the position of the base of the skull with our new curved cassette. We have picked up two or three fractures of the base where we couldn't possibly do it with the ordinary series.

SPEAKER FROM THE FLOOR: Is it possible to have one line of fracture instead of two in the opening formed by the pubic bones into the ischium?

DR. GEORGE: I have seen what I thought was one line. Yes, I should think it could.

SPEAKER FROM THE FLOOR: Yes, but here is a solid ring (Demonstrating manually). Could it be one fracture?

DR. GEORGE: Yes, we pass that opinion.

DR. BRIDGLEY: I would like to ask Dr. George to explain his new method of showing the fracture of the femur as done and brought out by Dr. Leonard and Dr. Fay. Where is the x ray film put? Where is the x-ray plate in order to show it?

DR. GEORGE: Dr. Leonard and one of the technicians worked on this. I had very little to do with that part of it. It was built to place between the groins and the x ray coming above the shoulder so that you are looking down on the top of the neck of the femur. Now in the ordinary curve that would fit in there you would get distortion of the neck, and Mr. Parsons who worked on the curve tried to utilize distortion in the reverse manner that is the only way I can say it. He made distortion bring itself back to the normal by a certain particular curve that there is on that set. Whether it is a true anatomical view is hard to say but it is a constant view. With the patient lying on the table it is put in like a saddle would be, and the x ray is brought up ten inches above the shoulder away from the shoulder so that you are coming down through as though I was looking down on top of my hip this way (indicating). We really can't tell anything about the fracture of the hip in the ordinary front view. I have, for years, talked about forming callus around the fracture. But when we get these views and follow them through to completion all the way through convalescence there isn't any callus. I mean external callus it is all internal callus a fusion.

It has taught us that the front view on fractures of the hip joint are practically valueless except for diagnosis really worthless so far as position goes. You can't tell where the neck is to the head, relatively or exactly. But in this view you have an exact standard to go by and you can tell whether you get back to the exact anatomical position.

A STUDY OF HEART DISEASE AMONG VETERANS*

II. Analysis of a Group of Cases as to Age at Onset and Duration of Heart Disability

BY PHILIP B. MATZ, M.D.†

THE various types of heart disease make their appearance at well-defined age periods. By this is meant the causative factors produce heart disease at certain periods of the human life span. Most of the statistical data in the literature on the subject refer to the age of the cardiac patient at the time of observation rather than the time of the first appearance of heart disease.

Lamb and Turner¹ in a study of 268 patients with syphilitic heart disease found that the ma-

jority of cases occurred in the age period between the appearance of rheumatic disease on the one hand and arteriosclerosis on the other. Two-thirds of a group of 268 cases first gave evidence of cardiac symptoms between thirty-one and sixty years of age. The average age for all the cases was 45.8 years. The youngest case was twenty-five and the oldest sixty-five years of age. These observers quote the findings of six others in a study of a total of 500 cases in which it was found that the average age at the time of the first appearance of syphilitic heart disease was 47.62 years.

White² in a series of 708 cases of hypertensive heart disease found that 62 per cent were in

*From the Research Subdivision, Medical and Hospital Service, Veterans' Administration.

†Matz, Philip B.—Chief, Research Subdivision, Medical and Hospital Service, Veterans' Administration, Washington, D. C. For record and address of author see "This Week's Issue" page 918.

the sixth and seventh decades, 17 per cent were over seventy years of age, sixteen per cent were in the fifth decade, 21 per cent of the cases were less than fifty years of age

White in a consideration of rheumatic heart disease states that it usually begins between five and fifteen years of age and the height of the onset is about the tenth year

In the discussion of arteriosclerotic heart disease, White states that the age of occurrence of the myocardial changes varies from youth to extreme old age, but it naturally increases with age. Of a group of 864 cases in New England, White and Jones found that 66.8 per cent were within the age groups between fifty and seventy years, and 26.9 per cent were in patients over seventy years of age. This type of heart disease may also occur in the young. There are cases on record in which the onset of cardiac disease occurred under thirty years of age, and, in one instance the patient was under twenty years of age.

TABLE SHOWING AVERAGE AGE AT TIME OF ONSET OF HEART DISEASE

Type of Heart Disease	Number of Cases	Age Range (Years)	Average Age (Years)
Rheumatic	93	13-56	31.8
Syphilitic	44	15-63	34.3
Bacterial infection	3	36-50	42.3
Heart disease, sequel of infectious disease	52	17-60	31.8
Thyroid	5	22-44	32.0
Cardiac neurosis	6	22-36	30.5
Arteriosclerotic	59	21-83	42.7
Hypertensive	17	21-62	35.6
General systemic disease	6	17-55	37.7
Unknown etiology	16	20-58	33.4
Potential	20	19-63	36.1
Possible	9	25-58	33.2
Total	330	15-83	34.8

In a study of the age at the time of the first appearance of heart symptoms in a group of 330 patients, it was found that the largest group 119 or 36.1 per cent gave evidence of heart disease during the age period between thirty and thirty-nine years, the next largest group 106 or 32.1 per cent showed symptoms of heart disease within the age period between twenty and twenty-nine, fifty-six or 17.0 per cent of the patients first gave evidence of heart disease within the age period between forty and forty-nine, thirty or 9.1 per cent gave evidence of heart symptoms within the age period between fifty and fifty-nine, eleven or 3.3 per cent gave evidence of heart disease prior to age twenty, and eight or 2.4 per cent of the group showed evidence of heart disease after the age of sixty.

There are certain data in this phase of the study which are worthy of emphasis. Of forty-

four cases of syphilitic heart disease, thirty-two first gave evidence of the heart disability before the age of forty, in fourteen instances syphilitic heart disease appeared during the age period between twenty and twenty-nine. Among fifty-nine cases of arteriosclerotic heart disease twenty-seven or 45.8 per cent of the group first gave evidence of the heart disability before the age of forty, seven of the number had symptoms of arteriosclerotic heart disease during the age period between twenty and twenty-nine.

The average age of a group of 330 veterans at the time of onset of heart disease may be seen by referring to the table. In addition the table shows the upper and lower age limits of the patients at the time of inception of heart disease as well as the average age for each type. It will be noted that the range is from fifteen to eighty-three years for the whole group. The average age at the time of inception of heart disease was 34.8 years.

In this connection it must be pointed out that the group of heart cases under discussion is a select one. Eighty-one per cent of the patients are World War veterans of an average age of about forty-two years.

DURATION OF HEART DISEASE

Cohn³ in commenting on the duration of heart disease refers to the study made by Romberg in a series of 176 cases, among whom he found that the interval between the date of the first heart attack, and the date of heart failure averaged 14½ months, the time between the beginning of heart failure and death averaged 5½ months, the range being from a few days to two to three years. On this basis Cohn considers the total duration as one and a half to two years with a range of from a few days to twenty years.

Cohn⁴ refers to a study made by Mackie in a group of twenty-five cases of mitral stenosis in which he found that it took from one to six years for the cardiac lesion to develop. The length of time before heart failure begins is estimated by Romberg as being approximately seven years, which figure he arrived at in a study of 102 cases of valvular heart disease. The stage of heart failure lasts on an average 4.8 years.

Cohn holds that the period from the beginning of the infection to the establishment of the chronic valvular lesion is on an average four years, from this point to the onset of heart failure seven years, from here to the death of the patient an average of four years, the total period of heart disability is, therefore, in the neighborhood of fifteen years.

If one deducts four years, which is the average period from the beginning of the infection to the establishment of chronic valvular heart disease, from the total period of heart disability (fifteen years), then one arrives at the

figure of eleven years, which is the average duration of heart disease from the date of diagnosis to the date of death

Grant* in a study of 1000 cardiac patients found that 51 per cent were known to be alive at the end of ten years, and 47 per cent were known to have died within this period. This observer found that the average life in cases of syphilitic heart disease with aneurysm is over five years, and in cases of syphilitic heart disease without aneurysm 58 per cent died within ten years. The general view among American observers, however, is that the average duration of life from the date of diagnosis to date of death in syphilitic heart disease is two to three years.

The writer* in a study of the duration of cardiovascular disease in a group of 491 cases found that the cardiac disability was present for periods varying from one to six months in thirty cases to from eight to nine years in forty-one cases; the largest group, eighty-five in number, gave a history of having had heart disease from seven to eight years. In the same study the writer estimated the duration of various cardiovascular lesions in 252 patients who died from heart disease. The interval between the date of diagnosis of the heart lesion to the date of death of the patient was as follows: For acute dilatation of the heart, eight months; acute endocarditis, four months; chronic endocarditis, four years; chronic myocarditis, four years; combined aortic and mitral disease, five years; and mitral insufficiency, three years.

For the purpose of arriving at an estimate of the survival period in the living cardiac cases and the duration of heart disease in the deceased cases, the data of 330 of the 500 veterans were analyzed. Of the 330 patients 286 were living and forty-four were deceased.

SURVIVAL PERIOD OF ETIOLOGICAL TYPES OF HEART DISEASE

In a study of the survival period of 286 living patients with cardiac disease, it was found that the largest group, consisting of 105 patients or 36.7 per cent of the total number, gave a history of having had heart disease from ten to fourteen years; the next largest group, eighty-seven, or 30.4 per cent, had heart disease from one to four years; twenty-two, or 7.7 per cent of the group, gave a history of having had heart disease for periods less than one year; and twenty-seven, or 9.5 per cent, gave a history of having had heart disease for fifteen years or longer.

In a study of the survival period of the living veterans affected with various etiological types of heart disease, it was found that of eighty-eight patients with rheumatic heart disease, the largest number, thirty-two, had a survival period of ten to fourteen years; and the next largest number, twenty-one, had a survival period of one to four years.

Of thirty-one cases of syphilitic heart disease, the largest number, thirteen, had a survival period of one to four years; and the next largest number, seven, had a survival period of five to nine years.

Of fifty cases of heart disease, the sequel of infectious diseases, the largest number, twenty-eight, had a survival period of ten to fourteen years; and the next largest number, twelve, had a survival period of one to four years.

Of forty-six cases of arteriosclerotic heart disease, the largest number, twenty-one, had a survival period of one to four years; and the next largest number, eleven, had a survival period of ten to fourteen years.

Of fifteen cases of hypertensive heart disease, the largest number, six, had a survival period of ten to fourteen years; and the next largest number, four, had a survival period of one to four years.

In connection with the above data, it is desired to point out that the survival period of the living cardiac patients is from the date of the inception of heart disease to the date of this study. Accordingly, the data represent the minimum figures.

SURVIVAL PERIOD OF ANATOMIC TYPES OF HEART DISEASE

A study was made of a group of cases to show the survival period of heart disease by anatomic types. For this purpose it was necessary to select patients with a single cardiac lesion. It was not possible to find any deceased cardiac patients of this type. However, seventy-one living patients gave evidence of a single anatomic heart lesion.

Of the seventy-one living cardiac patients with a single anatomic lesion, thirty-three have survived periods of from ten to fourteen years, and twenty-one from one to four years.

Of twelve cases with hypertrophy of the heart, four have survived from one to four years, and six from ten to fourteen years. Of twenty-one patients with chronic myocarditis, the largest number, ten, have survived periods from ten to fourteen years. Of twelve cases of mitral insufficiency, eight have survived periods from ten to fourteen years. Of ten cases of mitral stenosis, four have survived periods from one to four years, three from five to nine years, and three from ten to fourteen years.

DURATION OF HEART DISEASE

A study was made of the duration of heart disease among forty-four deceased veterans. It is realized that the group is a small one; nevertheless, it throws light upon certain important phases of the subject. The largest group, consisting of seventeen patients or 38.6 per cent of the total number, showed a duration of heart disease from one to four years; and the next largest number, consisting of ten patients or

227 per cent of the total number, gave a history of heart disease of ten to fourteen years' duration, two of the forty-four patients had heart disease for a period of fifteen years or over. The average duration of the heart disability for the total group of forty-four deceased veterans was 5.7 years.

A study of the duration of the etiological types of heart disease indicates that the average duration of five cases of rheumatic heart disease was 9.8 years, thirteen cases of syphilitic heart disease had an average history of heart disease for five years, in thirteen cases of arteriosclerotic heart disease the average duration of the disability was 6.25 years.

SUMMARY AND CONCLUSIONS

1. A group of 330 cardiac patients were carefully studied for the purpose of ascertaining the age at the time of onset of heart disease. It was found that the largest number consisting of 119 patients or 36.1 per cent gave evidence of the inception of heart disease during the age period thirty to thirty-nine years, the next largest group, 106 in number or 32.1 per cent, showed symptoms of heart disease within the age group twenty to twenty-nine. Certain data regarding the age at the time of inception of heart disease are worthy of emphasis. Thirty-two of a group of forty-four cases of syphilitic heart disease gave evidence of a heart disability before the age of forty, in fourteen instances syphilitic heart disease appeared within the age group twenty to twenty-nine. Among fifty-nine cases of arteriosclerotic heart disease twenty-seven or 45.8 per cent first gave evidence of disease of the heart before the age of forty, in seven instances of arteriosclerotic heart disease symptoms were noted within the age period twenty to twenty-nine. The average age at the time of inception of heart disease for the whole group was 34.8 years. The above data must be considered in the light of the fact that this group of patients is a

select one and that 81 per cent of the number were World War veterans of an average age of forty-two years.

2. In a study of the survival period of 286 living patients with heart disease it was found that the largest number, 105 or 36.7 per cent, gave evidence of the existence of heart disease from ten to fourteen years. Twenty-seven of the number survived the heart disability for fifteen years or over.

3. In a study of the survival period of cardiac patients with anatomic types of heart disease a selection was made of seventy-one living patients with a single cardiac lesion. Cases of cardiac hypertrophy, chronic myocarditis, mitral insufficiency, and mitral stenosis, showed varying survival periods up to fourteen years.

4. Among forty-four deceased veterans with cardiac disease the average duration of the heart disability was 5.7 years. The average duration of rheumatic heart disease in the latter group was 9.8 years, syphilitic heart disease had an average duration of five years, and arteriosclerotic heart disease had an average duration of 6.25 years.

5. The survival period of the group of living cases appears to be longer than the experience in civil life. The reason for the same is no doubt in part due to the availability of Veterans' Administration hospital facilities for the treatment of cardiac patients, and the ease with which such hospitalization is obtained.

REFERENCES

- 1. Lamb, Albert R. and Turner, Kenneth B. Cardiovascular syphilis. Nelson Loose-Leaf Living Medicine 4 337 1924.
- 2. White, Paul Dudley. Heart Disease. New York: The Macmillan Company, 1931.
- 3. Cohn, Alfred E. Heart disease from the point of view of the public health. Am Heart J 2 386 1926 27.
- 4. Cohn, Alfred E. Heart disease from the point of view of the public health. Am Heart J 2 275 1926 27.
- 5. Grant, R. T. After histories for ten years of a thousand men suffering from heart disease. (A study in prognosis.) Heart 6 275 (June) 1933.
- 6. Matz, Philip B. Statistical studies bearing on problems in the classification of heart diseases. V. Heart disease among ex service men. Am Heart J 4 313 (Feb and April) 1929.

MEDICAL SOCIAL SERVICE DEPARTMENTS

Five of the medical social service departments of the Boston hospitals continued to report on the uniform statistical forms for March. Figures showing the number of patients receiving social treatment and minor services for the last three months are given in the table below. The social service departments of the City Hospital and the Massachusetts General Hospital reported a larger number of cases, both intensive and incidental service cases, in March than in either of the two preceding months. In connection with relief expenditures of voluntary agencies it should be noted that the social service departments furnish medical relief such as special appliances, special diets and convalescent care. Dur-

ing February four of the departments spent \$1805 for 585 patients for medical relief.

NUMBER OF CASES UNDER CARE OF FIVE BOSTON MEDICAL SOCIAL SERVICE DEPARTMENTS, JANUARY TO MARCH, 1935

Departments	Under Care			Minor Services		
	Mar	Feb	Jan	Mar	Feb	Jan
Beth Israel	117	124	129	294	284	318
Boston Dispensary	361	360	335	708	561	611
Children's Hospital	108	107	114	204	268	231
Boston City Hospital	765	736	720	5667	4833	4579
Massachusetts General Hospital	472	444	435	1346	1089	1154

—Review of Social Statistics Boston Council of Social Agencies

MEDICAL PROGRESS

RECENT PROGRESS IN PHYSIOLOGY

BY PERCY G. STILES, PH.D.*

THE Nervous Government of Breathing—Sir Joseph Barcroft's "Features in the Architecture of Physiological Function" is one of the most fascinating of scientific books. Many of the author's clear and stimulating expositions bring home to the older reader a realizing sense of the swiftly changing conceptions of bodily processes which are the result of late researches. This is conspicuously true in the physiology of respiration. The traditional teaching has long been to the effect that there is a centre concerned with the regulation of breathing and that this centre is definitely localized and sharply circumscribed. Its position in the medulla has been confidently pointed out, it has been spoken of as single or, at most, as consisting of right and left halves with reference to the mid line. This is the "vital knot"—noeud vital—of classic physiology.

In the light of many studies reviewed Barcroft concludes that the "centre" of the textbooks does indeed exist but that it is a rather primitive and inflexible mechanism. If it is deprived of the modifying influence of certain other centres normally cooperating with it, the breathing observed consists of a series of convulsive gasps. The intervals between these movements are long and irregular. Each act is a swift and profound inspiration which seems to involve a maximal release of the available muscular power. The collapse of the chest which instantly follows is said to be wholly passive in nature, no use is made of muscles having a potential expiratory effect. The noeud vital viewed in reference to this performance, is the "gaspung centre."

As has been said, the activity of the gasping centre is ordinarily modified by influences from higher levels. According to the evidence there is a source of such directive impulses as far up as the anterior part of the pons. This has lately become known as the pneumotaxic centre. It affects the gasping centre in at least two ways: it cuts off the discharge to the inspiratory muscles before they have been maximally contracted and it introduces an active muscular component into the expiratory movement. It also quickens the rhythm of the breathing above the slow rate characteristic of the gasping centre when left to itself. The pneumotaxic centre is probably spurred to recurrent action by sensory currents. Included among them are those long recognized as originating in the lungs as they are alternately stretched and relaxed. These ascend by way of the vagi. Others of related function may come from the muscles used in breathing.

Under certain conditions, pathological or experimental, there may be suggestions of a mechanism at work which seems to be intermediate between the pneumotaxic and the gasping centres. The tendency disclosed is to hold the breath at the summit of each inspiration. A type of breathing results in which there are prolonged inspiratory tetani. This is described as apnoeic. It is oddly suggestive of a procedure calculated to make the lungs capacious reservoirs to hold reserve air for emergencies, in diving, for example.

Concerning the Whale—Turning to another section in Barcroft's book we find some arresting considerations respecting the whale. The mass involved in the physiology of this animal is something wholly unfamiliar. The energetics and metabolic tables must be upon the same scale. We are told that a whale with a length of 80 feet may weigh 120 tons. Within such a body, comparable to the hull of a tow boat, there may circulate some 8000 liters of blood. The heart which drives it has the weight of a horse, say 1300 pounds. The oxygen capacity of the blood is estimated to be 1700 liters. This is enough to meet the resting requirements of 1700 men for about four minutes.

Now it happens that such a whale has actually the mass of about 1700 men. The animal can remain submerged for something like half an hour. Its superiority to the human diver is therefore marked and the most obvious explanation is found in an economical metabolism. The basal rate for the whale, referred to weight or cubic contents, may be no more than one-tenth of the rate for man. It may be objected that the whale maintains a high body temperature though living in cold water. This possibility is perhaps sufficiently accounted for by two facts. First, the surface of the huge animal is relatively small, and secondly the superficial tissues (blubber) afford an efficient barrier to rapid heat loss. It is stated that the carcass of a whale scarcely cools after death, the heat of decomposition soon being substituted for that of normal metabolism.

Other problems raised by the proportions of the whale have to do with the power necessary to its progress through the water. They are much like those dealt with by the designer of submarines. Such an expert has cooperated with Barcroft in this connection according to his figures a whale developing 75 horse power can swim below the surface at a rate of 5 knots an hour. Breathing must be performed as often as once in five minutes, or at the end of every mile. To attain to a rate of 10 knots the horse power must be stepped up to 53 and for 15 knots

*Stiles, Percy G.—Assistant Professor of Physiology, Harvard University. For record and address of author see "This Week's Issue" page 918.

168 horse power will be required. Acceleration is therefore costly and so also is swimming in broken water at the surface of the sea.

Synthetic Powers of Animal Cells—In the teaching of elementary biology it used to be customary to assign all synthetic activities to the higher plants and to regard animal cells as wholly destructive. This sweeping distinction has long been recognized to be untenable. There are innumerable instances of the combination of simpler into more complex substances by animal protoplasm. It remains of interest to find out the extreme limits of such synthetic capacities. A contribution bearing on this question has been made by Mast and Page³. The attempt has been to determine the most meagre assortment of raw materials from which a protozoan—*Chilomonas*—can build up its own substance with resulting growth of the culture.

The organism multiplies in a medium containing $MgSO_4$, K_2HPO_4 , sodium acetate and glycine. Ammonium chloride may be substituted for the glycine. If we are not permitted to claim that radiant energy is utilized this would seem to be hard fare. Even bacteria which we regard as plants have need of compounds of a similar order.

Alcohol and Muscular Work—According to the present conception the oxidation of organic fuel is essentially subsequent to muscular activity and restorative in function. It is held that the three chief types of food are all available for this purpose. Whether alcohol may take its place with them is evidently a matter of great interest. It has been investigated by Canzanelli, Guild and Rapport⁴. Their inferences as to the rate of oxidation of alcohol in the experimental animal (dog) are based on measurements of the respiratory quotient. This ratio has a lower numerical value for alcohol than for any of the other foodstuffs. The indication is clear that the resting animal burns alcohol rather rapidly after ingesting it.

Comparing the condition of rest with that of exercise after alcohol the authors fail to find that this compound can serve as a source of muscular energy. Alcohol, from this point of view, figures as a "respiratory" food in the sense in which Liebig long ago used the term. Its energy is not wasted, it is at least available for the maintenance of the body temperature. When it is used for such a purpose it spares other types of food from consumption and thus may conserve them for service as muscle fuel.

Voluntary Increase of Metabolism—This subject is discussed by Carpenter, Hoskins and Hitchcock⁵. Measurements of oxygen consumption and related observations were made on one of the workers during many short periods usually of ten minutes each. The majority of these periods were designed to fulfil the conditions aimed at in determining basal metabolism, bodily relaxation and mental indifference were as far as possible realized. From time to time

the subject was directed to concentrate upon securing increased intensity in the metabolic process. According to his analysis of the mental procedure involved in this there was no conjuring up of an emotional situation. Muscle tonus was annulled excepting for one instance in which it was permitted to develop. External signs of activity were of the slightest.

When the voluntary effort to speed up metabolism was made the objective results were considerable. The increase of oxygen consumption was from 13 to 32 per cent. Pulse rate accelerated by 17 to 26 per cent and there were increments of a similar order in blood pressure, both systolic and diastolic. These are just such changes as would attend a mild degree of excitement. They have been induced, however, in connection with a state of mind hardly to be described in these words. It would rather be spoken of as a fixation of attention or exercise of the will. When we consider that falling asleep vitiates a metabolism test by lowering the values obtained it may be said that we have here the effects radiated to the tissues from a brain that is acutely awake. The most emphatic sign that a period in a test should be viewed with suspicion or thrown out is doubtless a quickening of the pulse.

Diabetes Insipidus—This remarkable disturbance of the water balance has long been referred to lesions of the pituitary or of parts of the brain in its neighborhood. It has been difficult to appraise the several factors which may be concerned. A paper by Richter deserves to be cited as contributing to the solution of the problem⁶. Operations were performed upon the pituitary in rats, effects on water economy were noted, and autopsies were utilized to determine the residual state of the gland. In general, it appeared that two conditions must coexist to maintain a typical diabetes insipidus. The posterior lobe must be destroyed, the anterior lobe must not be too badly damaged.

The inferences of Richter from the experimental facts are guarded and tentative. It is suggested that the primary source of the disturbance is the absence of the normal antidiuretic substance liberated by the posterior lobe. With this check withdrawn the kidneys secrete a great volume of water. Thirst is secondary; it is the reaction by which the animal compensates for this loss. The rôle of the anterior lobe is more in doubt. It might be held to oppose the posterior lobe as respects the secretion of urine. A less specific action may be conceived, when the organism is deprived of the anterior lobe there is such a widespread depression of its capacities that the water exchanges would not be expected to continue on a high level.

The importance of the stalk should be mentioned. Richter points out that it may contain the channel through which the antidiuretic

It is a fact that cutting the stalk may cause polyuria. Under these circumstances the hormone may fail to be distributed. An alternative conception may represent the stalk as including nerve paths by way of which the lobe is aroused to action. Severing the stalk would, in this case, leave the posterior lobe in some degree paralyzed. This view would also open the question whether there are definite centres in the adjacent brain stem which can be made responsible for stimulation of the lobe.

Breathing Pure Oxygen.—It is usually stated that the substitution of oxygen for air as breathed by a resting subject has no clear effect on the metabolism or on the feelings of the individual. Inhalation of oxygen at atmospheric pressure may slightly improve some types of athletic performance. It decidedly prolongs the possible duration of holding the breath. It was long ago observed that animals made to breathe pure oxygen under excessive pressure might be injured in consequence. Sometimes they collapsed abruptly, in other cases pneumonia developed after the trial.

The experiments now to be reviewed are those of Behnke, Johnson, Poppen and Motley.⁷ Human volunteers were studied. Continuous breathing of oxygen at one atmosphere could almost always be carried on for four hours with out disturbing effect. It may be noted that the pressure of oxygen in this case is nearly equal to that in ordinary air compressed five-fold such air as must be furnished to a diver about 170 feet below the surface. Of course the breathing of oxygen at standard pressure presented no technical difficulties. To breathe it at the higher pressures employed (two to four atmospheres) recourse was had to the large pressure chamber belonging to the Harvard School of Public Health.

Pressures of two and three atmospheres were well borne, the former for three and the latter for two hours. Oxygen at four atmospheres appeared definitely hurtful. Only two men attempted to breathe it and both were prostrated after about forty five minutes. Loss of consciousness occurred without any premonition, in one subject the experience seemed to be that of simple fainting, in the other there was a convulsive seizure and twenty minutes passed before complete recovery. Symptoms of pulmonary irritation were reported in only one case and, oddly, when the gas was furnished under atmospheric pressure. The effects were not at all severe.

Under pressures of the order of four atmospheres so much oxygen dissolves in the blood that the supply to the tissues would seem to be adequate even apart from the service of hemoglobin. Earlier writers have pointed out that when the corpuscular mass is out of action the elimination of carbon dioxide may be hindered. Under ordinary conditions there is a trans-

formation of reduced hemoglobin to oxyhemoglobin in the lungs. This is equivalent to the addition of acid to the blood and it tends to expel carbon dioxide. If, however, there is no reduced hemoglobin to be oxidized in the lungs because the corpuscles have not been desaturated, this expulsive action will be missing. The carbon dioxide of the arterial blood should, theoretically, increase and toxic effects resulting from high oxygen pressure may possibly be explained in this connection.

The Colon.—Raiford and Mulinos have conducted an interesting research on the "exteriorized" colon of the dog.⁸ A section of the transverse part is brought out through an incision and grafted upon an area from which the skin has been removed. The vascular and nervous connections are preserved. The loop is slit lengthwise and opened so that it lies flat on its new base with its mucosa exposed. The direction now maintained by the longitudinal and circular muscle coats is clear. Records of their contractions are made. Attention has been directed chiefly to analyzing the sequence of events following mechanical stimulation of the intestinal lining.

The movements observed are classed as local reflexes. Though the central connections of the region were originally intact as stated above, the motor reactions were not affected by their later interruption. It was found, in brief, that friction upon the mucosa caused contraction of longitudinal elements below the point stimulated and, after the lapse of three to five seconds, contraction of circular bundles above. The effect, in the intact colon would be to form a pouch below the stimulated zone and to press into it material from higher up. This corresponds with the myenteric reflex of Bayliss and Starling so far as the visible result is concerned. The explanation offered is simpler than the traditional one inasmuch as no inhibitory phases are postulated. The mediation of the stimulus is held to be accomplished in two stages. The first consists in a radiation of nerve impulses to localities in which a humoral agent is set free. The second comprises the diffusion of this hormone to the contractile cells.

REFERENCES

1. Barcroft, J.: Features in the Architecture of Physiological Function. New York: The Macmillan Company 1924. Chapter I.
2. Ibid: Chapter V.
3. Mast, B. O., and Pace, J. H.: *Protoplasm* 6: 5, 6, 1922.
4. Cavanaugh, A., Guild, R., and Raiford, D.: The use of ethyl alcohol as a fuel in muscular exercise. *Am. J. Physiol.* 110: 416 1924.
5. Carpenter, T. M.; Hoski, R. G. and Hittcock, F. A.: Voluntarily induced increases in the rates of certain "involuntary" physiological processes of a human subject. *Am. J. Physiol.* 110: 329 1924.
6. Richter, C. P.: Experimental diabetes insipidus. Its relation to the anterior and posterior lobes of the hypophysis. *Am. J. Physiol.* 110: 429 1924.
7. Behnke, A. R.; Johnson, F. B.; Poppen, J. R., and Motley, E. P.: The effect of oxygen on man at pressures from 1 to 4 atmospheres. *Am. J. Physiol.* 110: 555 1925.
8. Raiford, T. and Mulinos, M. O.: The myenteric reflex as exhibited by the exteriorized colon of the dog. *Am. J. Physiol.* 110: 119 1924.

CASE RECORDS

of the

MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C CABOT, M D

CASE 21201

PRESENTATION OF CASE

A thirty-two year old single Greek cook was brought to the Emergency Ward in a stuporous condition (The history is somewhat unreliable)

Approximately eight months before entry the patient suffered a head injury during an automobile accident. He was not unconscious but remained in bed for three weeks and then went to work for two weeks. Since the accident he had almost continual headaches and also episodes that he described as convulsions. Three weeks before entry he had a profuse nosebleed lasting several hours. This, in addition to his headaches, caused him to go to a hospital where he remained for ten days without improvement. He was unable to remember anything between the time of his discharge from the hospital, ten days ago, and his entry here. On the day before admission he was found in a stuporous condition by some friends. He had a convulsion and a nosebleed.

A note from the hospital where he had been for ten days previous to entry stated that he had epileptiform seizures every half hour and that his friends had said that he had been having convulsions for two days prior to that entry. Laboratory findings during his stay in the hospital showed a nonprotein nitrogen of 200 milligrams, and urine that contained a large trace of albumin and 30 to 40 white blood cells in an uncentrifuged specimen. A lumbar puncture was reported as being normal. The blood pressure was 144/94. A cystoscopy revealed cystitis for which he received hot boric bladder washes. He was placed on constant drainage but because of his inability to cooperate was discharged against advice.

Sixteen years before entry an abdominal operation was performed in England. Before this operation he had complained of vomiting and upper abdominal pain. Thirteen years before entry the patient fell through a hatchway and landed on his left side injuring, he believed, his left kidney. He remained in bed for about thirty days and then entered a hospital where his left kidney was removed. He had gonorrhea sixteen years before entry. During the past two years he had nocturia three to five times.

Physical examination showed a stuporous, well-developed but undernourished man in no

acute distress. The eye grounds were normal. There was a bleeding lesion at the angle of the mouth and several granulating oozing lesions over the lower extremities and one in the left groin. His mucous membranes were pale. His teeth were dirty and carious, with marked pyorrhea. The inguinal glands were moderately enlarged. His heart was enlarged, the left border of dullness being nine centimeters from the midsternal line, 1.5 centimeters outside the midclavicular line. There was a soft systolic murmur at the apex. The blood pressure was 140/90. There was a long upper left rectus and a left flank scar.

The temperature was 98.2°, the pulse 72. The respirations were 18.

Examination of the urine showed a specific gravity of 1.006 to 1.014 with a large trace of albumin. The sediment contained 15 to 20 white blood cells, an occasional red blood cell and granular cast. A small amount of Bence-Jones protein was found in two urine examinations. The red blood cell count was 3,100,000, with a hemoglobin of 50 per cent, the white cell count 6,200, 66 per cent polymorphonuclears. One stool examination gave a questionable positive guaiac. The nonprotein nitrogen of the blood was 175 milligrams. The plasma protein was 5.5 milligrams, the chlorides 107 cubic centimeters of N/10 Cl. Creatinin was 6.6 milligrams per cent. The serum calcium was 6.35 milligrams per cent and the serum phosphorus 5.70. A Hinton test was negative. A lumbar puncture was negative.

X-ray examination of the skull showed a one centimeter area of decreased density located just above the left frontal sinus. A flat abdominal plate showed the absence of the left kidney and no evidence of disease of the bones. There was a congenital variation of the left lateral transverse process of the first lumbar vertebra.

The patient acted confused. He was given two liters of 5 per cent glucose in saline every day. His urine output increased slightly. He became more rational and less drowsy. His nonprotein nitrogen fell to 127. A cystoscopic examination showed enlargement of the right kidney but no deformity of the pelvis. Three weeks after admission he developed pain in the right ear and a few days later the drum ruptured spontaneously, following which the pain disappeared. During the sixth week he became irrational, had six convulsions and died.

DIFFERENTIAL DIAGNOSIS

DR MYLES P BAKER. By the time of his first hospital admission elsewhere such possibilities as subdural hematoma or rapidly progressing brain tumor, with symptoms of increased intracranial pressure, or some more intangible result of the accident—all these possibilities can

be excluded. The picture of uremia was definitely manifest. However, this is an atypical picture of renal failure. At once the possibilities that may be considered with atypical cases of chronic nephritis come to mind.

There are certain points in this man's clinical picture that are typical of uremia from any cause. The decrease in capacity of the kidneys to concentrate the urine, the elevation of the nonprotein nitrogen and the other findings in the blood chemistry,—the retention of creatinin, the indication of inability to excrete chloride and phosphate, the decrease in serum calcium,—all of these are consistent with the diagnosis of uremia. The spinal fluid pressure is typically not increased in these cases of uremia without papilledema. We might presume that the CO_2 combining power of the blood was decreased. I cannot vouch for the skin lesions except to suggest that they may have been infected excoriations on the very itchy skin of a uremic patient. Typically patients with uremia have bleeding lesions around the gums and rather intractable nosebleeds. On the other hand the absence of edema, the absence of unequivocal evidence of hypertensive retinopathy of an important degree of hematuria, and of definite evidence of cardiac hypertrophy in the face of hypertension are rather unusual absences if we deal with that most common cause of uremia, chronic glomerulonephritis.

But we have in this man the unusual finding of a small amount of Bence-Jones protein in two specimens. This finding I believe was established by Dr. Jacobson and he tells me that it was described as a minimal amount of Bence-Jones protein. Is Bence-Jones proteinuria ever found in chronic glomerulonephritis? As far as I can make out, no. An occasional report may have drifted into the papers on the subject but then its reliability has been questioned. Can we exclude the commonest cause of uremia simply because he has no hypertension, because he has no marked hematuria, because he has no hypertensive retinitis? We cannot. Occasionally I know there have been cases reported at autopsy showing typical chronic glomerulonephritis without the usual hypertension and retinopathy. The fact that this man by pyelogram showed an enlarged right kidney is rather against the diagnosis of the end stage of chronic glomerulonephritis however. Similarly the absence of hypertensive retinitis or definite evidence of marked cardiac hypertrophy and dilatation would pretty definitely rule out vascular nephritis in this case even though we had no Bence-Jones protein present at all.

Does his past history help us at all? We know he had years ago a left nephrectomy a month after an accident. It might have been some premic lesion in the kidney possibly a "pus kidney", a renal stone or a large polycystic kidney. The latter sometimes used to be

removed. The pyelogram which was taken because of the obscure etiology of this man's uremia, does not show the elongation and deformity of the major and minor calices that we see in polycystic kidney.

That leaves us with three situations that might contribute to this man's renal failure: (1) chronic pyelonephritis, without obstruction in the genito-urinary tract, such as has been described by Dr. Longcope, (2) the destructive changes in the kidney noted as a complication of long standing hyperparathyroidism, and (3) the "Bence-Jones kidney" which is shown in those cases of multiple myeloma which develop renal failure. Several, four of nine, of Dr. Longcope's cases of chronic pyelonephritis have a similar absence of hypertension, retinal vessel changes and cardiac hypertrophy, and thus man's urinary sediment is in keeping with such a condition, with few casts, notably. But almost all of the cases had small kidneys with more evidence of infection of the kidney pelvis than I should say was present in this man's film.

Is it possible that this man might have had long standing hyperparathyroidism going on ultimately to what Dr. Albright has called a nephrocalcinosis and renal failure, and seen terminally when the blood calcium and phosphorus studies could only be non specific, such as one finds in rapidly developing insufficiency of functioning renal units? It is unlikely, and the question at once comes to mind whether you can have Bence-Jones proteinuria in hyperparathyroidism, recently Dr. Albright has stated that such is the case, that the protein was found in small amounts in two cases of hyperparathyroidism in which there had been marked bone changes. In view of the absence of evidence of von Recklinghausen's disease in this man, the duration of whose disease must have been long, it seems to me very unlikely that we are dealing with hyperparathyroidism. Such hyperplasia of the parathyroid glands as there may be is possibly secondary to a chronic pyelonephritis.

That leaves us with the possible diagnosis of chronic pyelonephritis in association with more diffuse myelomatosis than one would gather from the x ray evidence. We know that the "Bence-Jones kidney," so-called, is not necessarily a small kidney, we are dealing with a slowly developing atrophy of kidney tubules as a result possibly of a marked dilatation of the tubules by plugs of inspissated protein material thought to be Bence-Jones protein. An unusual type of hydronephrosis results. On the basis of averages 90 to 95 per cent of the cases that show Bence-Jones protein in the urine will have multiple myeloma, 3 to 5 per cent will have leukemia involving the bone marrow. That seems to be excluded in this case, so that our choice lies between multiple myeloma with the chronic intrarenal hydronephrosis seen in that situa-

tion, or a much less likely etiology. If we are to make one diagnosis I shall suggest that this man has myelomatosis and "Bence Jones" kidney.

CLINICAL DISCUSSION

DR BERNARD M JACOBSON In view of the very high incidence in this hospital during the past two years of cases showing Bence-Jones protein in the urine and the high correlation with the histologic demonstration of myeloma, I knew that we sooner or later would meet our Waterloo if we stuck too strongly to the thesis that Bence-Jones protein always indicates myeloma. If it had not been for the curiosity of Dr Kranes I might still rest on our previous records of Bence-Jones proteinuria. Dr Kranes picked it up in this patient and I confirmed this finding. I merely want to state that all the cases of myeloma have excreted the protein in a three plus degree. This patient's was one plus, and it is quantitatively similar to the amount found in one of Dr Albright's cases of hyperparathyroidism. The cases that have been reported in the literature of non-myeloma causing Bence-Jones excretion have also been one plus degree.

DR ARLIE V BOCK I should be inclined to make a diagnosis of chronic glomerulonephritis and throw out the Bence-Jones.

DR WALTER BAUER I think I should make a diagnosis of chronic glomerulonephritis in view of the fact that the Bence-Jones proteinuria has always been reported as being only very slight. I do not think there is sufficient evidence to entertain the possibility that we are dealing in this instance with a kidney lesion (nephrocalcinosis) secondary to hyperparathyroidism. Even though this patient represents uremia secondary to the nephrocalcinosis of hyperparathyroidism, we would still expect to find a hypercalcemia, with a hyperphosphatemia, instead of the usual hypophosphatemia. In other words, in such instances there would be an elevation of the inorganic serum phosphorus and in consequence a hyperphosphatemia. I believe that there may very well be an unrecognized complication. It would help considerably if we knew the exact reason for the previous nephrectomy. He may have been suffering from a hematuria caused by an acute glomerulonephritis which was interpreted as being due to traumatic rupture of the left kidney and in consequence nephrectomy was advised.

CLINICAL DIAGNOSIS

Uremia

DR. MYLES P BAKER'S DIAGNOSIS

Myelomatosis and "Bence-Jones" kidney

ANATOMIO DIAGNOSES

Chronic glomerulonephritis
Operative wound old nephrectomy, left
Cardiac hypertrophy
Dermatitis, acute and chronic

PATHOLOGIC DISCUSSION

DR TRACY B MALLORY The history in this case is certainly strewn with red herrings in the form of Bence Jones protein and the skull defect with its sharp margins. The skull defect turned out to be a complete absence of the inner table over a quite localized area, simply an outer table of the skull at that spot and nothing else, no tumor. Sections of bone marrow from several bones show no evidence of myeloma, although that diagnosis was seriously entertained in the House as well as by Dr Baker.

The remaining kidney was not enlarged and I think Dr Baker was misled by that statement. The pelvis, it is true, was enlarged but the kidney substance itself was small, it weighed 125 grams which would be a little small for a single kidney in a normal adult man and is extremely small for a single kidney where the other kidney had been removed four or five years before. The remaining kidney should have hypertrophied to at least 200 grams in the intervening time. The capsules stripped with a great deal of difficulty and left a finely granular scarred surface and microscopically the lesion is typical of a chronic glomerulonephritis.

The heart, in spite of the clinical evidence to the contrary, was considerably hypertrophied, weighing 450 grams. So that there are enough misleading data to make the diagnosis extremely difficult.

There are two points in relation to the differential diagnosis which have not been mentioned but which seem to me to be of some value. Our cases of true myeloma with "myeloma kidneys" have all shown high serum protein figures, whereas this was low. Then as regards the atrophic kidney of long standing hyperparathyroidism, such kidneys always show on histologic examination extensive calcium deposits in the parenchyma and even in the form of casts in the tubules. In the two well marked examples we have seen, these deposits have shown up very clearly in x-ray plates of the kidney region, whereas in this case the kidney outline could not even be visualized.

CASE 21202

PRESENTATION OF CASE

A thirty-six year old American housewife entered because of uterine bleeding.

Approximately two and a half months before entry the patient believed that she was preg-

nant because she went one day over her expected menstrual period and attempted to induce an abortion with a boiled curved instrument. She repeated this process for several days and following each attempt there was slight bleeding. At no time was there anything resembling blood clot or tissue. The blood staining disappeared after several days but recurred once the following week for about half an hour. There was no further bleeding until six weeks before entry, when she bled for nine days. The bleeding was quite profuse but disappeared following bed rest. Two weeks before entry the bleeding started again and lasted until admission. For the first week it was slight but gradually became more profuse and contained clots. At no time during the illness was there fever, malaise or pain.

The family history is non-contributory.

She had been married fifteen years. Her husband and four children were living and well. Her last pregnancy was eight years before entry. There were no miscarriages.

Her past history, including her menstrual history, is negative.

Physical examination showed a well-developed and nourished, slightly pale woman. The heart and lungs were negative. Upon vaginal examination the uterus was found to be hard about the size of a small orange, and seemed irregular in contour over the right cornu. The posterior lip of the cervix was soft and bluish. The anterior lip was fairly hard and covered with small cysts. The vaults were clear.

The temperature was 99°, the pulse 88. The respirations were 22.

Examination of the urine was negative. The blood showed a red cell count of 4,200,000 with a hemoglobin of 80 per cent. The white cell count was 8,750. A Hinton test was negative.

On the third day operation was performed.

DIFFERENTIAL DIAGNOSIS

DR. JUDSON A. SMITH. This case is that of a thirty-six year old housewife. If I abstract the story of her bleeding it is briefly this: She missed a period and then approximately four weeks after that, having attempted to abort herself, she had a period of bleeding which lasted nine days during which she passed no clot or tissue. Approximately four weeks after that she had a two-week period of bleeding which lasted until admission.

The physical examination is negative except for enlargement of the uterus.

The fact that this patient has missed a period immediately suggests at least to an obstetrician, that she had become pregnant. The history shows that at least during the early part of her married life she had normal fertility and we can deduce from her record that her periods were very regular. Missing a period in a woman of that age, with that history, is strong presumptive

evidence of pregnancy. If we suppose that she had become pregnant, what possible causes are there for bleeding? The first thing that occurs to us, and certainly the most probable cause, is that she has an abortion, either incomplete or of the missed abortion type, the so-called blighted ovum. That assumption would fit with practically everything in the history. If she has a blighted ovum of a month or six weeks' duration at the time of this admission the uterus would be the size described here. Furthermore, it is hard, which is consistent with a blighted ovum because once the ovum is dead the uterus loses the softness that is characteristic of a normal pregnancy. The absence of pain and cramps is no argument either way, and I think the blighted ovum in the uterus would explain the whole situation.

There are some possibilities we might keep in mind even if the patient were pregnant. She might have a mole. The facts against mole are that her uterus is not any bigger than it is—moles grow rapidly as a rule—it is firm, whereas a uterus with a mole is commonly soft. She might have chorionepithelioma with or without mole. It is a far fetched diagnosis but one to be kept in mind. I suppose any case of irregular bleeding following a missed period should raise the question of ectopic pregnancy. That ought to be excluded. There is no pain and no tenderness. The vaults are said to be clear, and of course the amount of bleeding is not characteristic of ectopic pregnancy. If she is pregnant at all it seems to me the most probable diagnosis is blighted ovum.

Does she have to be pregnant? Even women who have been conspicuously regular will occasionally miss a period. We might say that she missed it accidentally and then had two very abnormal periods. In that case I think that the first diagnosis to occur to us would be submucous myomata. That would explain the situation very nicely.

If she is not pregnant, enlargement of the uterus and bleeding must be attributed to some form of new growth and certainly myomata are the commonest at this age. Adenocarcinoma of the fundus would be very unlikely at this age, and the amount of bleeding was rather too much for that.

I do not believe there is any way of reasoning yourself to a diagnosis in this case with the evidence that we have. If we knew whether she had any symptoms of pregnancy in the first month or so we would be helped a little bit. We do not know whether she had nausea, vomiting or breast changes. And of course a positive Aschheim Zondek test would be of help, a negative test would be no good at all.

DR. TRACY B. MALLORY. The Aschheim Zondek was positive.

DR. SMITH. That puts entirely different light on it. We have to assume that she was pregnant

and that there is still living chorionic tissue in the uterus I think that increases somewhat the chances that she may have a mole or chorion-epithelioma

When was that Aschheim-Zondek test done? It must have been done on admission She was not seen before that

DR LANGDON PARSONS Just before she was operated on

DR SMITH It is possible that just the embryo had died An Aschheim-Zondek does not necessarily become negative because the embryo is dead It is a little bit surprising to get a positive Aschheim-Zondek test but I think I would still say that she probably had a blighted ovum and may have a mole or chorionepithelioma Of course the diagnosis is quite easily settled by curettage and I suppose they did that in this case

DR MALLORY I think we might put it up to you at that stage, Dr Smith It was done and was negative

DR SMITH What do you mean when you say that it was negative?

DR MALLORY A very small amount of grossly normal endometrium was obtained

DR SMITH Of course, there is a very important fact about the case which I do not have, that is exactly how the uterus felt to the man who examined her It is described as being somewhat irregular

DR MALLORY Perhaps you can help out, Dr Parsons

DR PARSONS Dr Smith is perfectly right for I went through the same suffering that he is going through, and it was only on the feeling of the uterus that we decided to operate We were presented with the Aschheim-Zondek as we faced the patient on the table The curettage, at least grossly, did not help us much The uterus was firm and hard, and its outlines appeared normal except for the right cornu where a mass could very easily be felt which seemed to be continuous with the uterus, projecting from it as a round tumor, which extended upward and backward It was somewhat softer than the rest of the uterus The only reasons for operating on this patient were that either the Aschheim-Zondek test was wrong, which is impossible, or that there was something wrong with the pregnancy itself

DR SMITH I do not think that it is sensible to assume that the Aschheim-Zondek test is wrong We had better assume that there was a pregnancy mixed up with it somewhere The only diagnosis I can see now is an interstitial ectopic pregnancy, which is still alive enough to give a positive Aschheim-Zondek test What else this mass could be, I do not know

DR LELAND S MCKITTRICK Would it be conceivable to have a pregnancy in the cornu,

not the usual part of the uterus, and bleeding into the uterus instead of into the abdominal cavity, and in that way not have pain?

DR SMITH It seems possible, theoretically I have never heard of a cornual pregnancy that ruptured into the uterus I would expect that if this happened there would be more bleeding than occurred in this case

DR MCKITTRICK If she was bleeding through the tube into the peritoneal cavity she would have pain

DR SMITH It strikes me as being very unusual to have that type of pregnancy and not have any pain

A PHYSICIAN Is there such a thing as cornual pregnancy?

DR SMITH Of course there is such a thing I have never seen one

PREOPERATIVE DIAGNOSES

Metrorrhagia.
Fibroid uterus
Endocervicitis

DR JUDSON SMITH'S DIAGNOSES

- (a) Preliminary, on basis of history
? Blighted ovum
? Mole or chorionepithelioma
- (b) Final, after learning of curettage and ether examination
Interstitial ectopic pregnancy

PATHOLOGIC DIAGNOSIS

Ectopic interstitial pregnancy

PATHOLOGIC DISCUSSION

DR. PARSONS The findings at operation confirmed what was felt on pelvic examination The mass had a broad base, was connected with the tube just as the tube came off the fundus of the uterus, was soft, bluish, and definitely in the wall of the uterus We felt that it was interstitial or cornual pregnancy

When the abdomen was opened we found an ectopic pregnancy in the cornu of the uterus I might add that there was only a very thin serosal layer between it and the peritoneal cavity Supravaginal hysterectomy was done Apparently if this type of ectopic pregnancy does rupture, so many major vessels are torn you never have a chance to do anything about it surgically Therefore, hysterectomy was done

DR MALLORY We have chosen to put this case up to Dr Smith serially since it is in such fashion that the surgeon is actually presented with it One must make an initial diagnosis and determine whether operation is justified Then only as the results of the ether examination and the curettage become available do the data be-

come sufficient for a final diagnosis which will determine the character of the remainder of the operation

As Dr. Parsons has said, the uterine wall on the peritoneal surface of this mass was less than a millimeter in thickness so that it probably was a matter of a few days at most, possibly a few hours before rupture into the peritoneal cavity would have occurred. Between the tumor and the cavity of the uterus the wall was thicker, between two or three millimeters in thickness, so that there would seem to be comparatively little danger of rupture there. Exactly why

she should have had so much bleeding is not clear

A PHYSICIAN Did the mass project into the uterine cavity? Was there any blood in the uterus?

A PHYSICIAN How do you explain the normal curettings?

DR. MALLOY The curettings were examined only grossly. I think it is very possible that microscopic examination would have shown decidua like changes in the cells such as you get often in a tubal pregnancy

The New England Journal of Medicine

SUCCESSOR TO

THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

COMMITTEE ON PUBLICATIONS

R. I. LEE, M.D. <i>Chairman</i>	HOMER GAGE, M.D.
R. B. OSGOOD, M.D.	R. M. SMITH, M.D.
F. H. LAHEY, M.D.	

EDITORIAL STAFF

REID HUNT, M.D.	STEPHEN RUSHMORE, M.D.
JOHN P. SUTHERLAND, M.D.	HANS ZINSSER, M.D.
GEORGE R. MINOT, M.D.	BENJAMIN WHITE, Ph.D.
FRANK H. LAHEY, M.D.	HENRY R. VIETS, M.D.
SHIELDS WARREN, M.D.	ROBERT N. NYE, M.D.
GEORGE L. TOBEY, JR., M.D.	ROBERT M. GREEN, M.D.
C. GUY LANE, M.D.	CHARLES C. LUND, M.D.

WILLIAM A. ROGERS, M.D.

WALTER P. BOWERS, M.D. *Managing Editor*

ASSOCIATE EDITORS

GEORGE G. SMITH, M.D.	WILLIAM B. BREED, M.D.
JOSEPH GARLAND, M.D.	

THE NEW HAMPSHIRE MEDICAL SOCIETY

PUBLICATION COMMITTEE

CARLETON R. METCALF, M.D.	HENRY H. AMSDEN, M.D.
WARREN H. BUTTERFIELD, M.D.	

THE VERMONT STATE MEDICAL SOCIETY

PUBLICATION COMMITTEE

WILLIAM G. RICKER, M.D.	C. F. DALTON, M.D.
L. H. ROSS, M.D.	

SUBSCRIPTION TERMS \$6.00 per year in advance, postage paid for the United States; Canada \$7.04 per year, \$8.51 per year for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office, 8 Fenway.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The New England Journal of Medicine, 8 Fenway, Boston, Mass.

THE PREVENTION OF VENTRICULAR FIBRILLATION AND DEATH FROM POISONING BY BENZOL AND CHLORO- FORM AND FROM THE EFFECT OF ELECTRIC SHOCK

UNDER the rather misleading title "New Therapy for Heart Disease" there has been recently published in the lay press a summary of some important experiments carried out by Doctors Nahum and Hoff of Yale University. There is among medical practitioners in general so little knowledge of this work carried on by the New Haven investigators that a brief comment on its significance appears advisable at this time and in this place in order that physicians may be cognizant of studies that bid fair to have an important clinical application and at the same time be able to answer the questions of lay patients and friends who have read, with little understanding as a rule, of the marvels of medical progress in the daily newspapers.

The steps in the process of the present study are somewhat as follows. Over twenty years ago

Levy¹ working in the laboratory of Thomas Lewis showed that under light chloroform anesthesia ventricular arrhythmias leading to ventricular fibrillation and death could be induced in experimental animals (cats) by conditions which stimulated the heart (such as sympathetic sensory excitation or nervous excitement accompanied by struggling in the earlier stages of chloroform administration) and by equivalent conditions which removed or reduced depressing influences. Full narcosis under chloroform abolished this tendency. It was concluded that in human patients sudden unexpected death under light chloroform anesthesia was due to ventricular fibrillation.

In 1906, 1909 and 1911 Reid Hunt and Taveau² had reported their pioneer work in the making and testing on animals of new compounds of choline, among them acetyl choline and trimethyl-(B-acetoxy-propyl)-ammonium chloride, now generally called acetyl-B-methyl choline chloride. To quote Hunt and Taveau's original words "Some of the compounds with which we have worked are so extraordinarily active physiologically (0.00000001 gram acetyl choline per kilogram animal, for example, causes a fall of blood pressure) and yet are not very toxic that it seems not improbable that some may prove of value in therapeutics." Concerning acetyl-B-methyl choline chloride Hunt and Renshaw³ have recently written, "We found this new compound to be so stable that it was very active in lowering the blood pressure not only when injected intravenously but when injected subcutaneously and even when given by mouth." They reiterated that the results obtained seemed to offer some promise of clinical usefulness even at that time (1911). Years afterwards this particular compound was "rediscovered" with no reference to the earlier work of Hunt and Taveau. The history of this Hunt and Renshaw recount³.

Loewi⁴ in 1921 showed that the chemical substance acetyl choline, made by Hunt and Taveau in 1909, is actually produced in the body at the vagal (parasympathetic) nerve endings by vagal stimulation, and Cannon and his co-workers⁵ in 1931 demonstrated that there is a substance antagonistic to acetyl choline, called sympathin, produced by sympathetic nerve stimulation, and that sympathin and adrenaline have similar properties. For more than a generation physiologists have known that the sympathetic and parasympathetic (vagal) divisions of the autonomic nervous system have opposite effects on various tissues and organs of the body. For example, the heart rate is slowed by vagal stimulation and quickened by sympathetic stimulation.

Also for many years it has been demonstrated by many workers that auricular fibrillation can

be induced by vagal stimulation and by digitalis, a vagal stimulant, in experimental animals and that various stimulants, especially epinephrine (adrenaline) and electric shock, can cause ventricular fibrillation with resulting cardiac standstill and death.

Nahum and Hoff have now advanced the frontiers further in four particulars. In the first place they⁶ have shown that benzol acts like chloroform on the heart, partial intoxication with it, in contrast to heavy saturation tending to induce ventricular fibrillation and sudden death if there is some added stimulus like excitement or effort which adds adrenaline or sympathin to the circulation, and that a fatal issue can be avoided in experimental animals by removal of the adrenal glands and the stellate ganglia.

Secondly, Nahum and Hoff⁷ have shown that removal of adrenal glands and stellate ganglia also protects animals from ventricular fibrillation and death when they are exposed to light chloroform anesthesia and electric shocks.

Thirdly, and most significant of all, it has been discovered by these investigators^{8,9}, that acetyl choline (or acetyl B methyl-choline chloride) the parasympathetic or vagal chemical substance, given to experimental animals protects them from ventricular fibrillation and death even when they are under light chloroform or benzol intoxication and stimulated as with adrenaline, or when they receive an electric shock of the strength which normally causes fibrillation of the ventricles. The important clinical application which is suggested by these findings is obvious.

On the other hand and finally, to date, Nahum and Hoff have discovered, as might be expected from work that has gone before, that acetyl choline, like vagal stimulation, can in experimental animals produce auricular fibrillation.

It is of further interest that the effect of acetyl B methyl choline chloride on the heart has already been studied clinically, notably by Ellis and Weiss¹⁰ and by Starr and his associates^{11,12}. The latter investigators found that in forty seven normal individuals the drug injected subcutaneously produced a prompt and vigorous action with fall in blood pressure rise of pulse rate (succeeding a brief fall), flushing, sweating and salivation. The effect of the drug in cases of paroxysmal tachycardia was also studied by Starr. Injected subcutaneously it caused immediate or almost immediate termination of twenty four paroxysms of tachycardia (seven of auricular or supraventricular type) in nine patients, in whom carotid pressure had generally been an unsuccessful therapeutic measure. Finally, the vascular spasm in Raynaud's disease was controlled temporarily in

some cases, and in most cases of hypertension the blood pressure was temporarily reduced.

From the experience of these various workers, therefore, it would seem desirable to try acetyl B methyl-choline chloride (mecholin or mecholyl) in some cases with obstinate and severe paroxysmal tachycardia (not subject to asthma), and in the prevention of disaster in cases of benzol or chloroform intoxication. Further studies with the drug are, however, needed to determine the frequency with which there may result untoward reaction from its use.

REFERENCES

1. Levy A. G. The exciting causes of ventricular fibrillation in animals under chloroform anaesthesia. *Heart*, 4: 319 1912 13.
2. Hunt, R., and Taveau R. de M. On the physiological action of certain cholin derivatives and new methods for detecting cholin. *Brit. M. J.* 3: 1783 1906. On the relation between the toxicity and chemical constitution of a number of derivatives of choline and analogous compounds. *J. Pharmacol. & Exper. Therap.* 1: 303 1905.
3. The effect of a number of derivatives of choline and analogous compounds on the blood pressure. *Hygienic Lab. Bull.* 73 1911.
4. Hunt, R., and Reuschau R. R. Further studies of the methyl choline and analogous compounds. *J. Pharmacol. & Exper. Therap.* 51: 77 1914.
5. Loewi O. Über humorale Übertragbarkeit der Herzmuskelwirkung. *Arch. f. exp. Physiol.* 189: 239 1921.
6. Newton, H. F., Zwemer R. L., and Cannon, W. B. Studies on the conditions of activity in endocrine organs. Part 25. The mystery of emotional acceleration of the denervated heart after exclusion of known humoral accelerators. *Am. J. Physiol.* 98: 277 1931.
7. Cannon, W. B., and Baer, E. M. Part 26. The hormone produced by sympathetic action on smooth muscle. *Ibid.* 98: 323 1931.
8. Rosenthal, A., and Cannon, W. B. Part 28. Some effects of sympathin on the nicotinic ganglia. *Ibid.* 99: 398, 1932.
9. Nahum L. H., and Hoff H. E. The mechanism of sudden death in experimental acute benzol poisoning. *J. Pharmacol. & Exper. Therap.* 50: 336 1934.
10. Hoff H. E., and Nahum, L. H. The rôle of adrenaline in the production of ventricular rhythms and their suppression by acetyl B-methylcholine chloride. *J. Pharmacol. & Exper. Therap.* 52: 236 1934.
11. Nahum L. H., and Hoff H. E. The experimental production of ventricular fibrillation by benzol and its prevention by B-methyl acetyl choline chloride. *Am. J. Physiol.* 109: 78 1934.
12. Hoff, H. E. and Nahum L. H. The nature of ventricular fibrillation following electric shock and its prevention by acetyl B-methyl choline chloride. *Am. J. Physiol.* 110: 675 1935.
13. Ellis, L. B., and Weiss S. A study of the cardiovascular responses in man to intravenous and intra arterial injection of acetylcholine. *J. Pharmacol. & Exper. Therap.* 44: 235 1932.
14. Starr, L. J., Elsom, K. A., Reisinger J. A. and Richards, A. Acetyl B-methylcholine (chloride). I. Action on normal persons. *Am. J. Med. Sci.* 136: 312 1933.
15. Starr L. J. Acetyl B-methylcholine (chloride). III. Action on paroxysmal tachycardia and on peripheral vascular spasm with discussion of its action in other conditions. *Am. J. Med. Sci.* 136: 320 1933.

STREPTOCOCCI AND PUERPERAL INFECTION

It has been surmised for some time that hemolytic streptococci obtained from various sources, such as human infections, bovine infections and milk, were probably different varieties, but attempts to differentiate such groups on the basis of cultural and biochemical characteristics have not led to consistent results. While it is usually true that strains of human origin produce relatively slight acidity when grown in dextrose broth, fail to hydrolyze sodium hippurate and are able to digest human fibrin and that those of bovine origin usually do the re-

verse, certain strains are constantly encountered which cannot be placed in either group

Serological differentiation employing agglutination as a test method has been unsatisfactory because of spontaneous agglutination so commonly found among streptococci. Several years ago, however, Lancefield¹ described a precipitin test with which she was able to divide all except two of 106 strains of hemolytic streptococci, isolated from various sources, into five distinct serological groups. This reaction was based on the presence in the bacteria of a group specific substance, similar, at least in two of the groups, to the polysaccharide responsible for type specificity among pneumococci. The four main groups were the following: A, those derived from human infections; B, those from bovine mastitis; C, those from a variety of animal sources other than human; and, D, those from cheese.

Confirmation of the accuracy and usefulness of this method of differentiation has been established in a recent paper by Lancefield and Hare² in which a group of hemolytic streptococci isolated from the vaginas of women at or about the time of parturition were classified according to the precipitin method. These strains were obtained in England and had previously been classified by Hare³ and Hare and Colebrook⁴ according to biochemical reactions. The latter were able to distinguish the streptococci that were responsible for severe puerperal infection from the majority of the saprophytic type, but in the former group there was an appreciable number of ante partum and post partum strains obtained from patients who either had a normal puerperium or showed signs of only a slight infection. Classification on the basis of precipitin reactions was much more striking. From forty-five cases admitted to the hospital with a diagnosis of puerperal uterine infection, forty-five strains of hemolytic streptococci were obtained of which forty-four were Group A. From 837 cases cultured routinely post partum in the hospital, eighty-five strains were obtained of which only two were Group A, and one of these cases developed a fatal puerperal infection. Finally, from 855 cases cultured routinely ante partum on the district thirteen strains were obtained none of which fell into Group A.

Interesting and practical corollaries to these findings are the apparent facts that the hemolytic streptococci responsible for severe puerperal infections are not normal ante partum inhabitants of the vagina and that such strains are introduced into the genital tract during or after delivery.

REFERENCES

- 1 Lancefield, R. C. Serological differentiation of human and other groups of hemolytic streptococci. *J. Exper. Med.* 57: 571 1933

- 2 Lancefield R. C. and Hare R. The serological differentiation of pathogenic and non pathogenic strains of hemolytic streptococci from parturient women. *J. Exper. Med.* 61: 335 1935
- 3 Hare R. Haemolytic streptococci from vagina of febrile and afebrile parturient women. *J. Path. & Bact.* 38: 129 1934
- 4 Hare R. and Colebrook L. Biochemical reactions of haemolytic streptococci from vagina of febrile and afebrile parturient women. *J. Path. & Bact.* 39: 429 1934

The Massachusetts Medical Society

THE ANNUAL MEETING

THE MEDICAL AND SURGICAL CLINICS AT THE MASSACHUSETTS GENERAL HOSPITAL

WHEN a state society holds its Annual Meeting the committee in charge has the choice of offering clinics at all the hospitals, or of concentrating on one hospital.

Under the former scheme a hospital would often spend a great deal of time developing a program only to find that a distressingly small audience greeted its effort. Therefore several years ago the Massachusetts Medical Society decided to focus its attention on one hospital, and found that this plan was much more successful than the former. As a result this scheme has been continued the locus being shifted from one hospital to another at each Annual Meeting.

This year there will be a Medical Clinic at the Massachusetts General Hospital on Tuesday morning, June 4 at 10 00 A.M. This Clinic will be conducted while the Section of Surgery is in session at the Hotel Statler. This date and time have been selected so that there will be no conflict between the Hospital Medical Clinic and the Section of Medicine on Tuesday afternoon at the Hotel.

There will be twenty-minute discussions by seven different members of the Staff. Included in these discussions will be the following: Joint Diseases, Cerebral Infarction, Streptococcus Infection, Ablation of the Thyroid, the Treatment of Furunculosis, and the Role of Emotion in Precipitating Symptoms. Since this is the only Medical Clinic to be held during the Annual Session it will well repay the effort of those medically minded men who take this opportunity of visiting the Hospital.

At 10 00 A.M. on Wednesday, June 5, in the Surgical Amphitheater, there will be a series of ten-minute talks and demonstrations by various members of the Surgical Staff. This program was arranged at the request of the Committee to accommodate Fellows of the Massachusetts Medical Society who are particularly interested in Surgery and may not care to attend the Medical Sections that forenoon at the Statler. An attempt has been made to cover a wide variety of subjects that will be of especial interest. Several new procedures will be presented with the results obtained to date.

There will be included in this session an evaluation of the passive vascular exercise apparatus.

tus (Pavaex) devised by Hermann and Reid for the treatment of peripheral vascular occlusion. This method has unfortunately been heralded in the lay press through no fault of the sponsors. Doubtless many members of the profession have been embarrassed by their patients inquiring about "new legs for old."

The new Osteomyelitis Clinic at this hospital will be described and the methods of management of this common and dangerous malady outlined.

Methods of technique on total gastrectomy, ulcerative colitis, common duct stones and pilonidal sinus will be presented.

The treatment of chronic bursitis by a simple method of irrigation and the diagnosis and treatment of the commonly overlooked ruptured intervertebral disc are important.

Other subjects include hyperparathyroidism, essential hypertension, carcinoma of the bladder and demonstrations by the Tumor, Fracture, and Ovarian Dysfunction Clinics.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors:

SPRAGUE, HOWARD B. A.B. M.D. Harvard University Medical School 1922. Assistant Physician, Massachusetts General Hospital. Visiting Physician, House of the Good Samaritan. Assistant in Medicine, Harvard Medical School. Courses for Graduates. Address: 270 Commonwealth Avenue, Boston, Massachusetts. Associated with him is:

ORGAIN, EDWARD S. M.D. University of Virginia Department of Medicine 1930. Research Fellow at the Massachusetts General Hospital 1933-1934. Instructor in Medicine, Duke University, 1935. Address: Duke University, School of Medicine, Durham, North Carolina. Their subject is "Electrocardiographic Study of Cases of Coronary Occlusion Proved at Autopsy at the Massachusetts General Hospital 1914-1934." Page 903.

HUDSON, HENRY W., JR. M.D. Harvard University Medical School 1925. F.A.C.S. Associate Surgeon, Children's Hospital. Assistant in Surgery, Harvard Medical School. His subject is "The Thymus Superstition." Page 910. Address: 66 Commonwealth Avenue, Boston, Massachusetts.

JONES, STEPHEN G. A.B., M.D. Harvard University Medical School 1921. F.A.C.S. Assistant Surgeon to Outpatients, Surgeon to Fracture Clinic, Surgeon to Diagnostic Clinic, Massachusetts General Hospital. Senior Visiting Surgeon, Chelsea Memorial Hospital, Chelsea, Massachusetts. Surgeon-in-chief, Symmes Arlington Hospital, Arlington, Massachusetts. His subject is "Fractures of the Head and Neck of

Radius Separation of Upper Radial Epiphysis." Page 914. Address: 270 Commonwealth Avenue, Boston, Massachusetts.

GEORGE, ARIAL W. Sc.D. (Hon.) D.M.R.E., M.D. Tufts College Medical School 1906. The Sir James MacKenzie Davidson Decoration 1923. Roentgenologist, Jordan Hospital, Cape Cod Hospital, Attleboro Hospital and Brooks Hospital. His subject is "Relations of Roentgenology to Medicolegal Practice." Page 924. Address: 43 Bay State Road, Boston, Massachusetts.

MATZ, PHILIP B. See This Week's Issue Page 894. Issue of May 9 for record of author. His subject is "A Study of Heart Disease Among Veterans. II. Analysis of a Group of Cases as to Age at Onset and Duration of Heart Disability." Page 929.

STILES, PERCY G. S.B., Ph.D. Assistant Professor of Physiology, Harvard University. Assistant Editor Biological Abstracts. His subject is "Recent Progress in Physiology." Page 933. Address: Harvard Medical School, Boston, Massachusetts.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY*

THOMAS ALMY M.D., Chairman 140 Rock Street, Fall River, Mass.	C. J. KICKHAM M.D., Secretary 534 Commonwealth Avenue, Boston, Mass.
--	---

SURGICAL INDICATIONS IN ACUTE PELVIC INFLAMMATION

The indications for surgical intervention in acute pelvic disease have been markedly limited since Simpson's paper in 1909 in which he first emphasized the value of conservative expectant treatment over radical surgical procedures. Best available figures show that 75 per cent of tubal disease is caused by the gonococcus which, if left alone, soon dies and has never been found on culture of tubes in which normal temperature of two weeks' duration had been shown in the clinical picture. In nonspecific infections, resolution of the exudate similar to the course in specific infection takes place, but the organ is often remains viable for long periods.

There are some few specific pelvic infections in which a spreading peritonitis is noted progressively coming out of the pelvis and going higher and higher with definite levels of increase of tenderness and peritoneal irritation. These cases are rather few but certainly there

A series of short selected articles by members of the Section will be published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the Section.

is indication to operate and drain without too much exploration to spread the disease further

Operative intervention to drain a pelvic abscess is sometimes necessary, not as a routine procedure, but to evacuate a pointing abscess or in long drawn out cases in which improvement is not shown.

Removal of a gangrenous appendix during the course of an acute pelvic inflammation is occasionally necessary. Most cases of periappendicitis which develop in the course of a pelvic process quiet down along with the primary cause.

Excessive flowing due to development of retention cysts in the ovary is encountered and may be of such severity as to demand operative interference. This situation is extremely rare, but must be considered.

Intestinal obstruction, secondary to a pelvic process, is seen and must be handled surgically as soon as diagnosis is made.

Every one practicing surgery has been or will be, unfortunate enough to open some patient with acute pelvic inflammation. The question as to the best procedure at that point depends entirely on the character of the patient, her moral tendencies and the likelihood of subsequent infection. If she has been unfortunate and the likelihood of another infection is small, the procedure of choice would be to close without any delay once diagnosis is made.

In general, indications for surgery in acute pelvic inflammation are relatively uncommon. Far more women will recover completely and be able to discharge their normal duties if conservative treatment is practiced.

SECOND ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the Committee for the week beginning May 19

Bristol South (New Bedford Section)

Friday, May 24, at 4 00 P M., at the St. Luke's Hospital, New Bedford. Subject: Obstetrics and Gynecology (Third Session). Harold E. Perry, M.D., Chairman.

Hampshire

Wednesday, May 22, at 4 15 P M., in the Nurses' Home of the Cooley Dickinson Hospital, Northampton. Subject: Cardiovascular Disease (Third Session). Robert B. Brigham, M.D., Chairman.

Norfolk (Norwood Section)

Friday, May 24, at 8 30 P M., at the Norwood Hospital, Norwood. Subject: Cardiovascular Disease (Third Session). Hugo B. C. Riemer, M.D., Chairman.

Worcester (Milford Section)

Thursday, May 23, at 8 00 P M., at the Milford Hospital, Milford. Subject: Cardiovascular Disease (Second Session). Joseph I. Ashkins, M.D., Sub Chairman.

A PRIZE FOR CASE REPORTS BY INTERNS IN MASSACHUSETTS HOSPITALS

The Massachusetts Medical Society has provided for the award of a prize of fifty dollars each year for the best written and most comprehensive case report submitted by an intern holding a rotating internship in a Massachusetts Hospital which is approved for intern training by the American Medical Association.

The prize for this year has been awarded to Dr. Joseph C. Edwards of the Springfield Hospital. He has reported a case of Primary Pulmonary Carcinoma in Association with Pulmonary Aspergillosis.

This paper will be published in *The New England Journal of Medicine*.

MISCELLANY

HEALTH IN BOSTON—JULY THROUGH DECEMBER, 1933*

When the Unemployment Census for Massachusetts was taken in the City of Boston as of January 2, 1934, it was decided to include questions concerning health because much has been said regarding the overcrowding of clinics and hospital wards and the decrease in the practice of private physicians. The purpose of this special study was to gather data regarding the illnesses each person had had during the last six months of 1933 to determine, if possible, whether illness was more prevalent among the unemployed and to learn the extent to which free medical facilities were being utilized.

It is recognized that there is seasonal variation in sickness and that the ideal period for study would have been the first four months of 1934. Since, however, the unemployment census was taken as of January, the health information obtained relates to the previous six months. For the purpose of the census, illness was defined "as any sickness which incapacitates a person for two days or more, keeping him or her from work, school, or performance of usual duties, or any sickness that has been diagnosed by a physician, even though the patient is up and about (i.e., heart trouble, arrested tuberculosis, arthritic condition, etc.)." The enumerators asked each family this question: "Has any person been ill in your family between July 1 and January 1?" The statement of the member of the family giving the information about illness was accepted as it was impossible to obtain medical verification. Health information was not secured in all cases, and this fact must be taken into account in the conclusions drawn.

*This material was prepared by Margaret H. Tracy, Executive Secretary of the Boston Health League for the State publication "Census of Unemployment in Massachusetts."

from the material Sixty-eight thousand and forty seven (68 047) persons reported seventy-six thousand and seventy three (76 073) illnesses during this six months period approximately nine per cent (8.8) of the persons in the whole population

The figures were compiled separately for the fourteen Health and Welfare Areas in the City. The number of illnesses reported per person was identical in each Health Area and was 1.1 per cent illness per person

TABLE 1

*Population and Unemployment All Persons
by Health and Welfare Areas*

	Unemployed		Temporarily Employed		Employed Full Time		Not Seeking Employment		Total Population		Number Individuals Reporting Sickness	
	No	Per Cent of Total Population	No	Per Cent of Total Population	No	Per Cent of Total Population	No	Per Cent of Total Population	Total Population		Number Reporting Sickness	Per Cent of Total Population
City Totals	88 075	11.5	37 987	4.9	211 040	27.4	432 442	55.2	769 604	68 047	8.8	
Back Bay	2 631	7.2	926	2.6	18 246	50.4	14 398	39.8	36 191	1 880	5.2	
Brighton	4 553	8.3	1 751	3.2	18 724	34.1	29,937	54.4	54 985	4 690	8.5	
Charlestown	3 748	12.8	2 112	7.3	6 304	21.4	17 164	58.5	29,328	2,211	7.5	
Dorchester North	12 719	10.4	5 667	4.6	33 049	27.1	70 658	57.9	122 093	10 610	8.7	
Dorchester South	7 448	9.6	2,876	3.8	21 564	27.9	45,296	58.7	77,184	6 301	8.3	
East Boston	8 666	13.9	3 755	6.0	10 085	17.1	39 279	63.0	62 365	5,272	8.5	
Hyde Park	2,997	10.9	1 479	5.4	6 120	22.2	16 908	61.5	27,503	2 458	8.9	
Jamaica Plain	3 915	9.0	2 085	4.8	12 421	28.6	25 030	57.6	48 451	3 254	7.5	
North End	3 927	16.8	1,533	6.8	4 566	18.2	13 635	58.2	23 411	2,341	10.0	
Roxbury	12,834	12.3	5 482	5.2	26 098	25.0	60 016	57.5	104,430	11 077	10.6	
South Boston	7 496	13.1	3 071	5.4	12 524	21.8	34 271	59.7	57 382	6 456	11.3	
South End	9 786	17.7	3 850	7.0	17 754	32.1	28 903	43.2	55,293	4 825	8.7	
West End	3 841	11.8	1 467	5.2	9 730	34.3	18 885	48.7	28,363	2,128	7.5	
West Roxbury	4 024	8.4	1 893	4.0	13 535	28.5	28 134	59.1	47 566	4,538	9.5	
Island Residents	—	—	—	—	49 500		61 500		100	—	—	

TABLE 2

*FINANCIAL CLASSIFICATION OF PERSONS ILL BY WORKERS
IN FAMILY BY HEALTH AND WELFARE AREAS*

Health and Welfare Areas	Persons Reporting Sickness	Financially Independent		One or More Full Time Workers		One or More Part Time Workers		No Employed Worker	
		No	Per cent of Total	No	Per cent of Total	No	Per cent of Total	No	Per cent of Total
City Totals	68 047	4 303	6.3	37 651	55.3	10,195	15.0	15 898	23.4
Back Bay	1,880	289	15.4	1 092	58.1	170	9.0	329	17.5
Brighton	4 690	224	4.8	3 412	72.7	478	10.2	576	12.3
Charlestown	2 211	143	6.5	1 065	48.2	399	18.0	604	27.3
Dorchester North	10 616	608	5.7	6 584	6.0	1 447	13.6	1 982	18.7
Dorchester South	6 301	239	3.8	4 437	70.4	658	10.9	937	14.9
East Boston	5,272	218	4.1	2,176	41.3	1,136	21.5	1 743	33.1
Hyde Park	2 458	138	5.6	1 413	57.5	389	15.8	518	21.1
Jamaica Plain	3,254	171	5.3	2 139	65.7	434	13.0	570	16.0
North End	2,341	95	4.0	765	32.7	539	23.0	942	40.3
Roxbury	11 077	942	8.5	5 268	47.6	1 875	16.9	2 091	27.0
South Boston	6 456	386	6.0	3 305	51.2	1,039	16.1	1 726	26.7
South End	4,825	58	12.1	1 650	34.2	781	16.2	1 810	37.5
West End	2,128	140	6.6	992	46.6	322	15.1	674	31.7
West Roxbury	4 538	130	2.9	3,353	73.9	509	11.2	546	12.0

On the whole a low percentage of sickness was associated with a low percentage of unemployment and conversely a high percentage of sickness was reported in districts where a high percentage of unemployed persons was reported. See tables 1 and 2. For example, in the Health Areas of Roxbury, North End and South Boston a higher percentage of persons reported illness than in the City as a whole and likewise in these same districts a higher percentage of persons reported unemployment or no employed person in the family.

Table 3 shows that during the last half of 1933, 48.1 per cent of the total cases of sickness reported receiving treatment by a private physician. Even in the South End where the percentage of cases going to a physician was lowest, one-third (33.8) had

available as to whether he had his own physician,—it is therefore possible that the percentage of cases having a private physician is even greater than the figures indicate.

The fourth table shows whether the patient paid for his medical care. As is to be expected, cases treated by a private physician show the highest percentage paying for care, but in six Health Areas (Charlestown, East Boston, North End, South Boston, South End and West End) one case in four or five was unable to pay the doctor. In these areas the percentage of unemployment and the percentage of families with no employed worker were higher than in the City as a whole.

As is to be expected, the percentage of paid cases in the out-patient departments of the hospitals is

TABLE 3

REPORTED CASES OF SICKNESS —NUMBER RECEIVING NO MEDICAL CARE, CARE BY PRIVATE PHYSICIAN, OR HOSPITAL CARE AS OUT-PATIENT OR IN-PATIENT BY HEALTH AND WELFARE AREAS

Health and Welfare Areas	Cases of Illness Total	Number of Cases of Sickness							
		No Medical Care		Private Physician		Out Patient Cases		In Patient Cases	
		No	Per cent	No	Per cent	No	Per cent	No	Per cent
<i>City Totals</i>	76,073	12,201	16	36,560	48.1	11,883	15.6	15,429	20.3
Back Bay	2,060	361	17.5	980	47.6	228	11.1	491	23.8
Brighton	5,134	621	12.1	3,030	59.0	315	6.1	1,168	22.8
Charlestown	2,402	313	13.0	1,291	53.7	277	11.5	521	21.7
Dorchester North	11,952	1,714	14.3	5,990	50.2	1,751	14.6	2,497	20.9
Dorchester South	6,970	1,004	14.4	3,727	53.5	904	13.0	1,335	19.1
East Boston	5,786	920	15.9	2,868	49.6	832	14.4	1,166	20.1
Hyde Park	2,702	435	16.1	1,483	54.9	244	9.0	540	20.0
Jamaica Plain	3,579	417	11.7	2,104	58.8	325	9.1	733	20.4
North End	2,625	287	10.9	1,180	45.0	658	25.1	500	19.0
Roxbury	12,680	2,365	18.6	4,991	39.4	2,820	22.2	2,504	19.8
South Boston	7,284	1,565	21.5	3,110	42.7	1,100	15.1	1,509	20.7
South End	5,506	908	16.5	1,863	33.8	1,593	28.9	1,142	20.8
West End	2,406	484	20.1	877	36.5	576	23.9	469	19.5
West Roxbury	4,987	807	16.2	3,066	61.4	260	5.2	854	17.1

a private physician, while in seven Health Areas (Brighton, Charlestown, Dorchester North, Dorchester South, Hyde Park, Jamaica Plain and West Roxbury) more than fifty per cent of the cases had doctors. With the exception of Charlestown these areas reported less unemployment than the City average.

In view of the fact that clinic attendance has markedly increased during the past four years, it is interesting to see that the highest percentage of cases receiving clinic treatment in a Health Area is 28.1 in the South End, while the North End reports 25.9, Roxbury 22.2, and the West End 23.9. The other Health Areas were below the percentage for the City as a whole (15.6 per cent). Even in the areas reporting the greatest use of clinics, only one case in every four went to a clinic.

Variation in the use of hospital facilities for bed cases was small—one case of illness in every five for the City as a whole reported care in a hospital. If the patient went to the hospital, information is not

very small, ranging from 4 per cent in South Boston to 77.2 per cent in Jamaica Plain. In Boston 9 per cent of the cases paid for treatment in the clinics.

Slightly more than half the inpatient cases received free medical care. Here again Charlestown, East Boston, the North End, Roxbury, South Boston, South End and West End reported the largest percentages of free care. It should be pointed out that doubtless many persons who paid something did not meet the full cost of their hospital care so that the percentages of pay cases does not represent full pay in many instances.

In general the Health Survey indicates that there is more sickness and more use of free care in areas where unemployment is highest. Despite the fact that the last six months of 1933 were economically as unfavorable as any since the beginning of the present depression, nearly one-half the cases of sickness reported during that period were treated by a private doctor.

AN HONOR TO DR. HARVEY CUSHING

In recognition of Distinguished Service Rendered to Humanity, The National Institute of Social Sciences presented the gold medal to four eminent scientists at the annual dinner May 9, 1935. This group consisted of Dr. Harvey Cushing, Cornelius N. Bliss, Hon. Carter Glass, and Dr. George E. Vincent.

The selection of Dr. Harvey Cushing for this honor is especially pleasing to his former associates and friends in Boston, for the great contributions to surgery by Dr. Cushing were, in large part, made while he was professor of surgery at the Harvard Medical School, and surgeon in chief at the Peter Bent Brigham Hospital.

DRUG CASES BRING HIGH FINES

Prosecutions for violations of the Federal Food and Drugs Act, terminated during March, brought fines aggregating \$2,644, the Food and Drug Administration reports. The highest fine was \$1,000, as assessed against T. M. Sayman, self-styled herb doctor, who made a fortune commercializing a common plant of the American southwest, called the "soap root" or "Spanish bayonet".

The T. M. Sayman Products Co., St. Louis, Mo., of which "Doctor" Sayman is practically the sole owner, had shipped in interstate commerce products known as "Sayman's Healing Salve", "Sayman's Vegetable Wonder Soap" and "Sayman's Liniment", the labels on the liniment claimed it to be a remedy for rheumatism, kidney diseases, pleurisy, tuberculosis, gripe, toothache, croup, cramps, hay fever, earache, deafness, ulcers, snake bite, horse colic and whooping cough. All these claims, the government alleged, were false and fraudulent and therefore in violation of the Food and Drugs Act. Sayman did not contest the government's findings and allegations.

In the early part of his career, Sayman conducted a traveling medicine show.

The Continental Drug Corporation of Alton, Ill., responsible for the shipment of fourteen lots of substandard drug products, such as witch hazel, carbolic acid, paregoric, turpentine, mercurchrome, camphorated oil, cod liver oil and castor oil, was fined \$420 on March 12. Products of this nature, commonly used in the home, are standardized by law in the United States Pharmacopoeia and the National Formulary, and variation from the legal standard is punishable as a violation of the Food and Drugs Act when the nonstandard articles enter interstate commerce. The purchaser of the common household remedies is in this way protected against cheats and against the danger of false security. There is no comparable Federal standard authority for food, except butter.

The labeling of "Cereal Meal", manufactured by the Cereal Meal Corp., St. Louis, Mo., was admitted to be fraudulent, and the manufacturer was fined \$270 for having shipped the "meal" to San Francisco, Denver, Chicago and Boston, at which points

it was seized. "Cereal Meal", a mixture of bran and other wheat products, linseed meal and agar agar, was recommended for use in cases of indigestion, chronic appendicitis, and intestinal inflammation and catarrh.

Patent medicine cases terminated during March also included that against the White Herb Mfg. and Remedy Co., Dr. John S. White, proprietor, who had shipped "White's Herb Tonic", a mixture of water, plant extractives, and less than one per cent of alcohol. The product was labeled as a system builder to be used in cases of syphilis, blood poison, rheumatism, kidney and liver troubles, pellagra, indigestion, women's diseases, gallstones, influenza, appendicitis and scrofula, in which conditions it would be worthless. A fine of \$50 was assessed.

Russell M. Evans, trading as Etsam Mfg. Co., Hatboro, Pa., was fined \$25 for having shipped his product "Etsam" bearing false and fraudulent claims for gallstones, liver, stomach and gallbladder trouble, palpitation of the heart, jaundice, neuralgia, poor circulation, appendicitis and other conditions.

"H. G. C.", labeled as an antiseptic but found to be not antiseptic, brought a fine of \$90 to the Acme Chemical Manufacturing Co., Ltd., and a fine of \$10 to Wm. T. Jay, its promoter, of New Orleans, La. The Scientific Manufacturing Co., Scranton, Pa., shippers of "Pheno Isolin", were fined \$30 when they decided not to contest the government's allegation that "Pheno Isolin", a mixture of fish oil, rosin, turpentine, camphor, menthol and thymol, would be ineffective in cases of infections, swellings, fever, tetanus, sore throat, sore mouth and gums, coughs, boils, carbuncles, ulcers and pyorrhea, for which it was recommended. "Sanovapor Dexene", bearing claims for diabetes, was also adjudged misbranded, and the Sanovapor Laboratories, Huntington, West Virginia, the manufacturers, were fined \$100.

Seizures were instituted during March against the following medicines bearing false and fraudulent therapeutic claims for the conditions indicated: "Allimin" for high blood pressure, arteriosclerosis, kidney and bladder trouble, "Anti Pyrexol" for ulcers, piles, felons, boils, carbuncles and skin diseases, "Bleachodent Liquid" for pyorrhea, "Booth's Hyomei" for catarrh, bronchitis and hay fever, "Capsicum Salve" for rheumatism and lumbago, "Carbosalve" for sores, wounds and skin infections, "Ditman's Sea Salt" for rheumatism and debility, "Ferro China de Angelis" for anemia, malaria, stomach disorders and general debility, "Ferro China Doria" for anemia, loss of appetite and general debility, "Hall's Canker Medicine" for canker, sore throat, and tonsillitis, "Jaques Little Wonder Capsules" for stomach ailments, "Lucorol" and "Serrvex Antiseptic Powder" for female disorders, "Mother's Salve" for coughs, croup, catarrh, piles, and skin diseases, "Mrs. Olsen's Valuable Salve" for cuts, boils, old sores, eczema and other skin diseases, varicose ulcers and blood poisoning, "Pyrol" for boils, piles, ulcers and eczema, "Sullivan's Oil", also known as "Sullivan's Indian Oil", for earache, toothache, coughs, catarrh, croup, sore

throat, bronchitis whooping cough asthma, influenza, rheumatism and lumbago "Teenjore Ointment" for eczema ulcers piles psoriasis boils, ringworm, carbuncles and mange "Dr Thacher's Liver and Blood Syrup" for constipation indigestion, loss of appetite dyspepsia, blood impurities and palpitation of the heart "Thymoform" for blood poisoning sores and wounds "Unguensalve"

for skin diseases "Artificial Vichy Water Powders" for chronic indigestion, acute stomach trouble diseases of the liver kidneys and bowels "Wilharm's Salve" for boils carbuncles felons, abscesses catarrhs swellings and all kinds of sores "Watkins Veterinary Balm" for wounds and skin diseases of livestock and "Dr Wright's Wormsol" for worms in chickens and turkeys—*Excerpts from U S Department of Agriculture*

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1934
AND SEVEN YEAR AVERAGE

MONTH ENDING APRIL 27 1935

	1935					1934			
Diseases	Week ending April 6	Week ending April 13	Week ending April 20	Week ending April 27	Average cases reported for week corresponding to April 27 for past seven years	Week ending April 7	Week ending April 14	Week ending April 21	Week ending April 28
Actinomycosis	—	—	—	—	—	1	—	—	—
Amebiasis	—	1	—	—	—	—	—	—	—
Cerebrospinal Men	1	3	1	—	2	1	2	1	1
Chicken Pox	123	116	123	137	99	71	88	91	127
Conjunctivitis Inf	7	12	8	—	5	8	—	—	3
Diphtheria	4	5	2	2	14	3	3	1	3
Encephalitis Epid.	—	—	—	—	—	—	—	1	1
German Measles	93	125	149	232	38	1	4	2	—
Influenza	5	7	6	8	6	—	6	2	—
Measles	1191	1779	1065	1263	310	23	55	52	71
Mumps	67	84	91	53	81	118	144	126	131
Pneumonia (Broncho)	34	34	25	33	31	19	30	24	17
Pneumonia (Lobar)	46	58	44	43	37	29	31	45	26
Poliomyelitis	1	—	—	—	—	—	—	—	—
Scarlet Fever	130	105	110	76	89	77	64	61	58
Septic Sore Throat	6	14	9	5	1	1	2	1	—
Smallpox	—	—	—	—	2	—	—	—	—
Tetanus	1	1	—	—	—	—	—	—	1
Trichinosis	1	—	—	—	—	—	—	—	—
Tuberculosis (Pul)	34	25	41	34	31	28	23	24	16
Tuberculosis (OF)	1	1	5	1	3	4	1	2	1
Typhoid Fever	—	1	—	—	—	2	1	1	—
Undulant Fever	2	1	1	—	—	1	—	3	—
Whooping Cough	40	44	46	39	31	95	44	66	31
Gonorrhea	21	16	19	11	31	25	13	21	34
Syphilis	67	47	32	40	55	56	49	48	76

Remarks No cases of Asiatic cholera, glanders plague or yellow fever during the past seven years

MILWAUKEE, WISCONSIN — 1935 CONVENTION
CITY FOR THE AMERICAN PUBLIC HEALTH
ASSOCIATION

Milwaukee extends a cordial invitation to all public health officials and representatives to come to the annual convention of the American Public Health Association, October 7 to 10 1935

The spirit of genuine hospitality is Milwaukee's heritage traced through generations

The growth of this city from an outpost Indian trading village to its present size as the twelfth most populous city in the United States in less than four generations is one of the marvels of the twentieth century To-day it stands as the metropolis of Wisconsin and one of the great trading marts of the country

Milwaukee is known as the most law-abiding large city in the United States Statistics show less crime

in Milwaukee in proportion to population than any other large American city. This is a great tribute to the character of its citizens, but it is also a tribute to the swift manner in which courts administer justice, and to efficient city administration.

It is easy to get to Milwaukee. Its central location makes it accessible from all parts of the United States at surprisingly low travel rates.

The hotels in Milwaukee are the finest the convention visitor could desire and the accommodations are ample. The rates are reasonable for the service offered.

You will enjoy the convenience of this city. The hotels, theater, shopping and business districts are all within walking distance of each other.

Milwaukee is a typical American city. It is a city of homes and home loving people, pleasant folk whose residential areas are beautiful, in splendor or in moderation all parts of the city bear evidence to its citizens' appreciation of comfort and beauty.

Milwaukee boasts of being the healthiest and safest city in the United States. Repeated awards from the Chamber of Commerce of the United States show statistics not to be equaled by any other city.

Milwaukee is ranked first in the United States in the diversification of its industries.

Plan now to attend the convention, to enjoy the meetings and the attractiveness of a truly ideal convention city. Remember the dates—October 7 to 10, 1935.

CORRESPONDENCE

A COMMITTEE TO INVESTIGATE ABUSES OF MEDICAL CHARITIES

May 4, 1935

Editor, *New England Journal of Medicine*,

A committee has been appointed by the organized medical profession of the City of Boston as represented by the Suffolk District, the Norfolk District and the Middlesex South District of the Massachusetts Medical Society to investigate instances of abuse of medical charity in the city and endeavor to aid in the correction of any abuse. The executives and trustees of many of the charitable institutions have expressed a willingness to cooperate with this committee and already progress has been made.

It will aid this committee in its work to have specific instances of the abuse of medical charity called to its attention so that it can take up specific instances with the proper authorities, because it is felt that by working on specific problems more results can be obtained than working upon generalities.

The committee sends this letter to the *Journal* with the hope that you will care to publish it so that the medical profession at large will realize that there is such a committee in existence and that this committee will welcome information in regard to the abuse of medical charity in Boston. If any physician knows of such instances, the committee

will appreciate it if the details are forwarded to Dr. Channing Frothingham, 1153 Centre Street, Jamaica Plain, Mass.

Sincerely yours,

EDWARD J. O'BRIEN,
CHARLES MALONE,
C. FROTHINGHAM,
COMMITTEE.

LETTERS AND FACTS RELATIVE TO DR. SOUTHARD SOLICITED

Columbia University
College of Physicians and Surgeons
630 West 168th Street, New York
Department of Bacteriology

April 17, 1935

Editor, *New England Journal of Medicine*,

I have been engaged for the past few months in collecting data, memorabilia, and personal impressions concerning the late Dr. E. B. Southard, at the time of his death (1920) Bullard Professor of Neuropathology, Harvard Medical School, and Director of the Massachusetts State Psychiatric Institute, in order to write his biography. His friends and pupils have nobly responded in so far as I have known how to reach them through personal communication.

I now take this less personal means of reaching others perhaps equally devoted to his memory, whom I have overlooked or not known to have had relations with him, in the hope of reconstructing a still more complete picture of the multiform personality of this gifted man.

Letters from and to him are particularly desired and if forwarded to me will be acknowledged and returned when they have served their purpose. Personal remembrances concerning him have proved to be very vivid and individual and additional ones would be gratefully received.

FREDERICK P. GAY, M.D.

THE EQUILIBRATED SALT DIET

Professional Scientific Service
Publishers

245 Broadway, New York, N. Y.

April 30, 1935

Editor, *New England Journal of Medicine*,

Our attention has been called to a review of our little monograph entitled "The Equilibrated Salt Diet", which appears in the current issue of your *Journal*.

Inasmuch as this review contains serious inaccuracies, may we crave space for a brief rejoinder?

None of the distinguished dermatologists who have written on this diet, nor we, ourselves, have alleged that the equilibrated salt (Titro Dietetic Salt) forms "an isotonic solution containing sodium, calcium, potassium, magnesium, chloride, lactate and citrate in proper proportions." The equilibrated salt is a dry mixture whose cation relation is approximately the same as the cation relation of the blood and tis

sue fluids. The chloride lactate and citrate content of the mixture does not enter into the theoretical foundations of the diet, which depend upon the cation relation alone.

The real point at issue is not, as conceived by your reviewer whether any well balanced diet will provide the proper supply of cations but whether continuous ingestion of practically pure sodium chloride (table salt) is capable of deranging the normal cation relation.

That the withdrawal of sodium chloride from a diet unfolds therapeutic effects in various cutaneous disorders is fully established and admits of no dispute. However recent research has shown that the injurious effects of sodium chloride in such conditions are due to the sodium cation and not to the entire sodium chloride molecule or to the chloride. It has likewise been shown that these injurious effects can be abolished by equilibrating the sodium of sodium chloride with definite proportions of cations which antagonize sodium. The therapeutic effects of this equilibrated salt mixture have been reported on by American and foreign dermatologists and the evidence which we have presented in our monograph should convince the most skeptical that the subject is worthy of serious attention.

The salt problem is inseparably connected with the mineral metabolism. The true significance of the latter is now beginning to dawn and no amount of skepticism will avail against the onward march of this phase of medical science.

We remain Sir

Very truly yours

ROBERT WOLLHEIM

WALTER H. SCHAUINSLAND PH.D.

AN APPROVAL OF THE EDITORIAL "TRUTH SENTIMENT AND MEDICINE"

May 6 1935

Editor *New England Journal of Medicine*

Just a note to let you know how strongly I approve of the general spirit of the first editorial which appears in the *Journal* May 2.

It seems to me that one of the most unfortunate features in medical practice to-day consists of the separation which has come in between what is called the science of medicine and the art and practice of medicine. It seems to me that the care of a patient, irrespective of the general approach which may be given is or should be distinctly scientific in its general understanding and whether the help offered is along mental lines or is produced by expressions of sympathy or by complex drugs is immaterial, it all is really a part of the great scientific approach to the healing of the sick.

In the Victorian days, as you speak of them the physician in those days — or surgeon because the surgeons in those days practiced medicine as well as did surgery — were expected to know all that the so-called science of the day knew and were to apply it in their daily work with their patients. To-day unfortunately the laboratory side of medicine

which now has appropriated the term "science," very largely is expected to dominate the work of the physician instead of the physician being big enough to take that which is shown in the laboratory findings and use those findings in so far as he is able in caring for his patient.

That which you speak of as sympathy or understanding seems to me a real part of what we do for our patients and if we can relieve an overwrought or tense individual of some unnecessary worry many times that does as much in quieting the overwrought internal glands as drugs could possibly do and is entirely in keeping with the science of the practice of medicine.

I am pleased to have you print this note and feel sure that before many years the laboratory will be more definitely for the assistance of the physician in details of his work rather than dominating so much of the work as it does to-day.

Congratulating you and with best wishes I am,

Very truly yours,

JOEL E. GOLDTHWAIT M.D.

372 Marlborough Street, Boston

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago Ill

April 30 1935

Managing Editor

The New England Journal of Medicine

In addition to the articles enumerated in our letter of April 6 the following have been accepted

Wm. S. Merrell Company

Diphtheria Toxoid, Alum Precipitated (Refined)
ten 1 cc. vials (10 immunizations) package

U S Standard Products Co

Polysaccharic Antitoxin (Tetanus-Gas-Gangrene)
Refined and Concentrated

Yours sincerely

PAUL NICHOLAS LEECH Secretary

RECENT DEATHS

BEATTY — FRANKLIN THOMASON BEATTY M.D., of 139 Beacon Street, Boston, died at his home April 18 1935. He was born in Baltimore in 1857 and graduated from the Jefferson Medical College of Philadelphia in 1885. He had practiced in Philadelphia and Boston, but retired several years ago.

He was a member of the University Club the Algonquin Club the Country Club of Brookline the Anglo-American Club of Dresden Germany the Banker Hill Monument Association the Bostonian Society the Sons of the Revolution and the Society of the War of 1812. He was a Mason.

JOHNSON — FRANCIS EMERSON JOHNSON M.D. of Erving Massachusetts died at his home April 30 1935 after an illness of several months.

Dr. Johnson was born in Unity New Hampshire in 1857 the son of Ezra and Melissa Johnson. His

early life was spent in Claremont, New Hampshire, where he graduated from the high school. He graduated from the Dartmouth Medical School in 1882. He practiced in Erving, Massachusetts, for forty-three years after short periods in Gilsum, New Hampshire, Cooleyville and New Salem.

He joined the Massachusetts Medical Society in 1884 and retired in 1932. In addition to conducting a large practice, he served as town treasurer for twenty-one years and was an officer of the local church. He was an Odd Fellow, Mason and was associated with the Orange banking interests.

The affection and regard of that section were shown by a reception to Dr. Johnson on his seventy-fifth birthday, when prominent citizens of Erving, Orange, Warwick, Wendell, Millers Falls and New Salem assembled in the town hall to do him honor.

Dr. Johnson is survived by his widow, Mrs. Christine (Cuthbert) Johnson, a son, Cuthbert Johnson, a grandson, Emerson Johnson, of Springfield, and a sister, Mrs. Celia Butler, of Philadelphia.

TWOMBLY—EDWARD LAMBERT TWOMBLY, M.D., of 222 Beacon Street, Boston, with an office at 144 Commonwealth Avenue, died at his home, May 10, 1935. He was born in Cherry Valley, New York, in 1859, the son of the Rev. Alexander S. Twombly and Mrs. Abigail Quincy (Bancroft) Twombly. He came to Boston early in life, graduated from the Boston Latin School in 1877 and from Yale in 1881. His M.D. degree was conferred by the Harvard Medical School in 1886. He later studied in Berlin, Prague and Vienna, and in the forty-five succeeding years practiced in Boston. He was medical consultant to the Boston Dispensary for more than thirty years and was an instructor at the Tufts College Medical School.

He joined the Massachusetts Medical Society in 1886 and retired in 1932 and was also a Fellow of the American Medical Association. He is survived by his widow, Mrs. Evelyn (Chowne) Twombly, and two brothers, Henry B., of New York City, and Howland T., of Boston.

NOTICES

THE BEAUMONT MEMORIAL HIGHWAY

The citizens of the town of Lebanon and the Beaumont Medical Club have arranged for the dedication of the Beaumont Memorial Highway at Lebanon, Connecticut, on June 1, 1935.

The State of Connecticut has designated the new highway between Lebanon and Willimantic the Beaumont Memorial Highway in honor of Dr. William Beaumont, who was born in Lebanon, November 21, 1785.

The order of exercises is as follows:

12 00 M. Karl F. Bishop, First Selectman, presiding. Dedication of the Beaumont Memorial Highway, Wilbur L. Cross, Governor of the State of Connecticut, Lieutenant Colonel Robert H. Duenner, Medical Corps, United States Army.

2 30 P.M. Professor Russell H. Chittenden, presiding. Memorial Address, Dr. Harvey Cushing.

BOSTON UNIVERSITY SCHOOL OF MEDICINE SURGICAL CLINIC AT THE BOSTON CITY HOSPITAL

Friday, May 17, 12 1, Cheever amphitheatre

Dr. Daniel F. Jones, Consulting Surgeon, Massachusetts General Hospital, New England Hospital for Women and Children, and the Beth Israel Hospital, Boston, will discuss "Diseases of the Rectum with Special Reference to Cancer."

Physicians and medical students are invited.

REMOVAL

CLIFFORD L. DERICK, M.D., announces the removal of his office to 520 Commonwealth Avenue, Boston.

REPORTS AND NOTICES OF MEETINGS

CLINICAL MEETING AT THE ROBERT BRIGHAM HOSPITAL

A clinical meeting was held at the Robert Brigham Hospital on Tuesday, April 23. The meeting was opened with the presentation of several charts concerning the diagnosis, classification, and treatment of arthritic conditions. The first case to be presented was a thirty-one year old married woman who, in September 1933, developed a stiff neck and one month later was awakened at night with an acute pain in one of her big toes. The toe was swollen and red, and has been sore ever since. Since that time she has had several joints with a similar condition. In March 1935, an attack of grippe caused the joints to flare up. Physical examination showed the extremities to be cold, and one ankle, one wrist, and several finger joints were swollen. Her sedimentation rate was one hundred and thirteen millimeters, and her blood uric acid was 3.8 milligrams per cent. A urethral smear was negative. X-ray examination of the affected joints showed some periarticular thickening, some irregularity and slight degeneration, and in one joint the space was markedly narrowed.

The findings in this case were felt to be compatible with rheumatoid arthritis, but it was pointed out that the acuteness of the onset in the toes and the glossy swollen appearance of the joints suggested gout. At present she is on a high purine diet to see what effect it will have on her joints. It was pointed out that a similar type of arthritis may follow dieting and a loss of weight. There was much disagreement among those discussing the case as to the prognosis, and it was generally accepted that any attempt to give a prognosis in these cases is futile.

The general treatment of such a case was stressed, and such therapy should be continued for a long time. In general, it can be said that such a patient should be treated as a tuberculosis patient, and the

local joints should be splinted to rest them and later have passive exercise massage heat, etc

The second patient, a twenty-four year old girl, who presented a strong family history of rheumatic fever and who had, growing pains at the age of twelve, entered complaining of swelling of her feet. In September 1934 she had a gradual onset, without any previous infections of a dull ache in her left shoulder on motion. Later her ankle and feet became involved. The symptoms of each joint lasted two or three days and improved on bed rest and salicylates. She was flushed had a reddened posterior pharyngeal wall and cryptic tonsils. Her feet were swollen and tender. Except for the fact that the condition in the feet had lasted for several months the history was typical of rheumatic fever. On one occasion there had been a positive complement fixation test for the gonococcus there in the hospital. Her sedimentation rate was forty three millimeters the urethral smear was negative and a routine complement fixation test was negative. X-ray examination demonstrated a slight periarticular swelling around the finger joints and the bones of the feet showed some decalcification and soft tissue swelling. The shape of the heart suggested rheumatic fever. It was pointed out that her age is compatible with the type of rheumatic fever that causes rheumatic joints without cardiac complications. Doctor Spink saw this patient at the Boston City Hospital, and feels that her story is very suggestive of rheumatic fever. A high nutritious diet was recommended as well as plenty of sunshine and perhaps throat gargles. It was suggested that the feet be put in a cast at right angles.

The third case was that of a twenty six year old waitress who in July 1933 had an acute onset of pain in the right leg and thigh which was severe enough to send her to bed. Two days later it traveled to the left knee which was swollen for some months. Later the right hand became swollen and painful so that she found it difficult to get any sleep. The left knee at the time of presentation only moved about twenty degrees without pain and the right wrist was also limited in motion. Physical examination showed the tonsils to be large and boggy and the right ear drum showed a perforation. This case is typical of a gonorrheal arthritis with a sudden severe onset of pain of only a few joints lasting for some time and leaving a residual stiffness. The sedimentation rate was forty five millimeters per hour. A cervical smear showed many gram negative intracellular diplococci and the gonococcus complement fixation test was positive although a second one was negative. By x-ray typical gonorrheal arthritic changes were seen with loss of joint space and some ankylosis without any atrophy of the bones.

Doctor Spink spoke of the experiences of the Boston City Hospital and said that the complement fixation test tends to become negative about three months after the acute arthritis quiets down and that in the acute arthritis due to the gonococcus this test is positive in ninety per cent of cases. Typhoid

vaccine in amounts of fifty million bacilli can be given intravenously as a provocative test, and in these cases will often make both the cervical smear and the complement fixation test become positive. He also pointed out that in the large proportion of these cases the knee is involved and that a tap of the knee joint should be done in all cases so that the fluid may be cultured and have a differential count, Wassermann and complement fixation test done on it. Not only is the tap used as a diagnostic procedure at the Thorndike but also as a means of draining the pus. It may be repeated as often as is necessary. At times an incision is made over the lateral aspect of the joint and the knee is irrigated with about a gallon of hot saline and the incision immediately closed. Of course the primary focus should be treated.

The affected joints should be given exercises within the range of motion that is painless. Splints should support the joints in the lower extremity in the position of weight bearing if possible and in the upper extremity with the elbow at about ninety degrees flexion and with the wrist in dorsiflexion. By such treatment complete recovery of articular function is sometimes possible.

WORCESTER DISTRICT MEDICAL SOCIETY

At the Annual Meeting of the Worcester District Medical Society May 8 the following officers were elected

President, Dr William F Lynch Worcester
Vice-President Dr Roy J Ward Worcester
Orator Dr William A. Bryan Worcester
Treasurer Dr Edward P. Disbrow Worcester
Secretary Dr Erwin C. Miller Worcester
Councillors on Nominations Dr David Harrower Worcester
Dr Royal P. Watkins Worcester—Alternate

Committee on Funds Dr Michael F. Fallon Chairman Worcester
Dr Leslie R. Bragg Webster Dr Edgar A. Fisher Worcester

Commissioner of Trials Dr Walter P. Bowers Clinton.

Councillors Dr James C. Austin Spencer term began 1930 *Dr Walter P. Bowers Clinton term began 1902
Dr Leslie R. Bragg Webster term began 1922
Dr Frank H. Clapp North Grafton term began 1930
Dr Philip H. Cook Worcester term began 1929
Dr William J. Delahanty Worcester term began 1913
Dr George A. Dix Worcester term began 1921
Dr Ernest B. Emerson Rutland term began 1934
Dr George E. Emory Worcester term began 1920
Dr Michael F. Fallon Worcester term began 1916
Dr Homer Gage Worcester term began 1906
Dr James J. Goodwin Clinton, term began 1921
Dr David Harrower Worcester term began 1905
Dr Ernest L. Hunt Worcester term began 1918
Dr Edwin R. Loh Worcester term began 1932
Dr William F. Lynch (President) Worcester term began 1935
Dr Arthur W. Marsh Worcester term

Councillor for life by virtue of being a past president of the State Medical Society

began 1922, Dr Erwin C Miller (Secretary), Worcester, term began 1929, Dr Joseph W O'Connor, Worcester, term began 1931, Dr Walter C Seelye, Worcester, term began 1930, Dr Edward R Trowbridge, Worcester, term began 1924, Dr Frank H. Washburn, Holden, term began 1916, Dr Royal P Watkins, Worcester, term began 1927, *Dr Samuel B Woodward, Worcester, term began 1902

Censors, Dr George A. Dix, Supervising Censor, Worcester, Dr John J Dumphy, Worcester, Dr Lester M Felton, Worcester, Dr Thomas F O'Brien, Worcester, Dr Harold V Williams, Whitinsville

Nominating Committee, Dr Raymond H Goodale, Chairman, Worcester, Dr Gordon Berry, Worcester, Dr Joel M Melick, Worcester, Dr Edward F Mitchell, Clinton, Dr Andrew E O'Connell, Worcester

Auditing Committee, Dr Edson W Glidden, Chairman, Boylston, Dr Percy A. Brooke, Worcester, Dr Herbert E Hedberg, Worcester

MASSACHUSETTS SOCIETY FOR SOCIAL HYGIENE

ANNUAL MEETING

The Annual Meeting of the Massachusetts Society for Social Hygiene was held at the University Club, Boston, on Tuesday, April 23

Dr John H. Stokes, Professor of Dermatology and Syphilology, University of Pennsylvania School of Medicine, was the speaker of the occasion. His subject was "The Doctor, the Public, and the Syphilis Problem"

Dr E. Granville Crabtree, President of the Society, gave a summary of the work done in the past year. Five hundred and fifty four lectures on Social Hygiene were given by the four lecturers of the Society reaching 28,000 persons in all parts of the State. Three hundred and thirty-three patients were cared for at the Boston Dispensary Evening Clinics for Syphilis and Gonorrhea, subsidized in part by this Society.

During the year the Society established a Consultation Service after a study of similar services that are being successfully conducted in New York, Philadelphia, and Washington. The Service is supervised by a Sponsoring Committee of fourteen representative physicians, educators, and social workers. It is in immediate charge of a Steering Committee composed of the following: Mrs Maida H. Solomon, Dr George Gilbert Smith, Mrs Eva Whiting White, and, ex-officio, Dr E. Granville Crabtree. Institutes for Nurses and Social Workers were held in Springfield and Boston. The Institute in Boston, held on April 22 and 23, was attended by over five hundred social workers.

Dr Nels A. Nelson, Assistant Director, Division of Communicable Diseases, State Department of Public Health, gave a paper on "How Prevalent Are Syphilis and Gonorrhea?"

Dr George Gilbert Smith of Boston, President-Elect of the American Urological Association, gave

a paper on "What the Social Worker Should Know about Gonorrhea."

Dr Harry C. Solomon of Boston, Assistant Professor of Psychiatry, Harvard University Medical School, gave a paper on "What the Social Worker Should Know about Neurosyphilis."

Miss Edith Canterbury, Chief of Social Service, Boston Dispensary, and Mrs Evangeline H. Morris, R.N., Educational Director, Community Health Association, led the discussion of the above addresses.

Dr Helen I. D. McGillicuddy, Educational Secretary, Massachusetts Society for Social Hygiene, spoke on "Sex Problems among Children and How They May Be Handled."

Lester W. Dearborn, Chief Consultant, Counseling Service, Massachusetts Society for Social Hygiene, spoke on "An Approach to Typical Adult Sex Problems."

The discussion was led by Mrs T. Grafton Abbott, Educational Secretary, Florence Crittenton League, and Miss Villa T. West, Psychiatric Social Worker, Boston City Hospital.

At the annual election of the Society the following Officers, Directors, and Members of the Executive Committee were chosen:

Officers: Dr E. Granville Crabtree, President, Mrs Maida H. Solomon, Vice-President, Miss Elizabeth Ross, Secretary, Mr William Wadsworth, Treasurer.

Directors: Hon. Sanford Bates, Mrs Frances Mayer Carter, Mrs Robert L. DeNormandie, Mr Charles F. Glueck, Dr Rudolph Jacoby, Rev. Harry Levi, Mrs Frank C. Scanlan, Dr Edward S. Ward, Mr Robert F. Herrick.

Executive Committee: Dr Harold L. Leland, Hon. Herbert C. Parsons, Dr George Gilbert Smith, Dr Gaylord W. Anderson, Dr Wilson G. Smille, Mrs. Eva Whiting White.

THE ESSEX SOUTH DISTRICT MEDICAL SOCIETY

ANNUAL MEETING

The annual meeting of the Essex South District Medical Society was held at the Salem Country Club, Peabody, Mass., on May 8, 1935.

LIST OF OFFICERS ELECTED 1935-1936

President: Dr Hanford Carvel, Gloucester
Vice President: Dr J. F. Bradley, Peabody
Secretary: Dr R. E. Stone, Beverly
Treasurer: Dr Andrew Nichols, III, Danvers
Commissioner of Trials: Dr O. C. Blair, Lynn
Censors: Dr A. E. Parkhurst (Supervisor), Beverly, Dr S. N. Gardner, Salem, Dr S. R. Davis, Lynn, Dr J. J. Hickey, Peabody, Dr J. J. Egan, Gloucester

Nominating Councilor: Dr C. L. Holtt, Lynn
Alternate Nominating: Dr O. S. Pettingill, Middleton

Councilors: Dr C. F. Deering, Danvers, Dr R. E. Foss, Peabody, Dr J. F. Jordan, Peabody, Dr C. L. Curtis, Salem, Dr N. P. Breed, Lynn, Dr J. W.

Trask Lynn Dr C H Phillips Beverly Dr W G Phippen, Salem Dr J F Donaldson, Salem Dr O S Pettingill, Middleton Dr A. E Parkhurst, Beverly

Executive Committee Dr J R Shaughnessy Salem Dr R P Hallett Gloucester Dr O F Twomey Lynn Dr Sherman Golden Beverly Dr O S Pettingill, Middleton Dr C A. Bonner Hathorne.

Submitted by the Nominating Committee Dr Gay R. Jacobs Chairman Dr J C Marchand Dr W W Babson.

The following Dr Hanford Carvel Dr R. E Stone by reason of their offices are also Councilors

The guest speaker was Dr L. Vernon Briggs of Boston Mass

Very interesting medicolegal cases were cited to illustrate and justify the plea that the speaker wished to make viz., that children even as young as six to eight years should be carefully examined physically mentally and morally whenever any doubt existed as to their normalcy In this way except in true mental deficient criminal tendencies might be prevented by appropriate means other than the usual procedure of expensively punishing the resulting criminal in later life.

NATHANIEL POPE BREED, M.D. Reporter

FAULKNER HOSPITAL CLINICAL MEETING

The regular clinical meeting was held at the Faulkner Hospital on Thursday afternoon May 1. One of the cases discussed from the clinical pathological point of view was that of a carcinoma of the rectum which had penetrated into the bladder. A few weeks before death a colostomy was established. For some days preceding death a mass developed in the region of the bladder. The nature of this swelling was not established until the postmortem examination when it was found to be a large abscess which had developed from the ulceration and perforation of the cancer. It was thought during life that it might have been a rapid development of the growth.

The other case was one of unusual interest. Shortly before death the symptoms of intestinal obstruction developed. The patient was known to have a duodenal ulcer with some pyloric obstruction, and two weeks before death except for the duodenal ulcer and obstructed pylorus there was no evidence of disease along the gastrointestinal tract so far as x-ray studies could determine with the barium given by mouth. A barium enema had not been given. Upon examination of the abdomen just before death there was a large mass in the left lower quadrant which seemed to progress and recede. It was thought that possibly there might have been a markedly dilated stomach and this mass due to the peristaltic waves passing down to the pylorus although the location did not seem to be appropriate for the pylorus. On washing out the stomach it was found that it was not dilated. Before the pa-

tient could be explored she died. At autopsy the large mass felt in the left lower quadrant was found to be an intussusception of the cecum hepatic flexure and transverse colon into the descending colon extending as far as the sigmoid and pulling with it some of the ileum. There was a carcinoma of the cecum adjoining the attachment of the appendix. Just when this intussusception started is not clear. The patient complained of no pain for the five days preceding death. There was no blood in the bowel movements. There was vomiting each day for the five days preceding death. A duodenal ulcer with some pyloric narrowing was also found at autopsy.

Following the discussion of these cases Dr Henry M. Emmons called attention to certain signs and symptoms which occur in the eyes in problems of internal medicine. He spoke of the cyanosis of the retina that occurs in erythromelalgia and described an instrument for measuring the degree of exophthalmos. He described corneal lesions that may occur as a result of vitamin deficiency. He emphasized the fact that an intracerebral lesion never caused a paralysis of a single eye muscle. Changes in the lens of the eye may be indicative of hypofunction of the parathyroid glands. In dementia praecox he has made a study of the pupils in a series of cases and has found that they are dilated and that this may be diagnostic of the catatonic stage if myopia can be ruled out. If children show paralysis of accommodation he feels that it nearly always indicates a preceding encephalitis. Although toxic amblyopia is usually produced by alcohol or tobacco or a combination of the two he has had some cases when the condition occurred without these etiological factors and he wondered if acetanilid may be another poison which produces the condition as one of his patients was taking a good deal of this drug. He presented a schedule showing the different diagnostic points between metastatic panophthalmitis, orbital cellulitis and the cavernous thrombosis.

Dr F. William Marlow Jr. then described a certain type of latent muscle error which his father Dr Frank W. Marlow of Syracuse has been interested in for a number of years. Apparently this latent muscle error can only be detected by putting the eye at complete rest for an appreciable time and then the examination must be made immediately after the eye has been at rest for several days. With this method of examination muscle errors are discovered which are not picked up in the usual routine examination by an ophthalmologist. Patients that have this latent trouble may present three types of symptoms. The symptoms referable to the eye are sensitiveness to bright light and fatigue of the eyes on prolonged use or close work. Another set of symptoms points toward the gastrointestinal tract with indigestion, nausea and vomiting. The third set of symptoms points toward the central nervous system and consists in headache, drawing feeling in the back of the neck and vertigo. Most of these cases are considered psychoneurotic individuals and fail to show any evidence of disease by elaborate

study There is very apt to be a history of migraine in the family He described two very striking cases in which the patients had been changed from invalidism due to a variety of these symptoms to entire relief of the symptoms by the correction of this latent muscle error Apparently the correction does not have to be complete, in fact, better results are obtained if only a certain degree of the error is corrected

Doctor Marlow emphasized that this condition is not accepted by all as the cause of the symptoms but he and his father have had such striking results that they are convinced the correction of the disturbance in the eye is the curative factor and not due to suggestion

There will not be any more monthly meetings until the Autumn of 1935

THE TUFTS MEDICAL SCHOOL ALUMNI ASSOCIATION

The Tufts Medical School Alumni Association has planned a luncheon for Monday, June 3, 1935, at 12 30 P M in the President's Room at the University Club A year ago the Executive Council of the Association decided to arrange a luncheon in connection with the annual meeting of the Massachusetts Medical Society The speaker will be Dr Iago Galdston, Executive Secretary of the Medical Information Bureau of the New York Academy of Medicine, whose subject will be "The Economic and Social Aspects of Socialized Medicine—An Analysis of the Socio-Economic Issues Involved"

Any one interested in this problem is invited to attend Reservations may be made through the Secretary, Dr Robert T Phillips, 270 Commonwealth Avenue, Boston

NEW ENGLAND HEART ASSOCIATION

The regular monthly meeting of the New England Heart Association will be held on May 27 at the Rhode Island Hospital in Providence at 8 15 P M Program 1 Idiopathic Mediocystic Necrosis of Aorta with Rupture Dr Robert J Williams 2 Migratory Pacemaker Dr Frank B Cutts 3 Significance of Blood Chemistry Determinations in Cases of Cardiac Edema Dr Clifton B Leech 4 Comparison of A-V Index with Electrical Axis Deviation Dr Henry C Weyler

To be read if time permits Coronary Thrombosis in a Boy of 22 Dr Frank T Fulton Remarks on the Chest Lead in the Electrocardiogram Dr Cecil C Dustin Two Cases of Cor Pulmonale with Autopsy Dr Charles F Gormly

The Rhode Island Hospital extends a cordial invitation to members to attend an informal buffet supper at 6 30 P M at the hospital before the meeting Those who expect to come to supper will please notify Dr Frank T Fulton at the hospital before hand

JAMES M FAULKNER, M D, *Secretary*

HARVARD MEDICAL ALUMNI ASSOCIATION

The Annual Meeting of the Harvard Medical Alumni Association will be held in Parlor D, Hotel Statler, on Monday, June 3, at 12 30 P M A luncheon will follow the business meeting Price \$1 00

VERNON P WILLIAMS, M D, *Secretary*

THE TRUDEAU SOCIETY

ANNUAL MEETING

The annual meeting of the Trudeau Society will be held at the Lakeville State Sanatorium on May 21 at 4 P M The speaker will be Dr, Andrew Peters, who will read a paper on "The Place of Heliotherapy in Pulmonary Tuberculosis" A demonstration of the treatment in non pulmonary tuberculosis, with special emphasis on the technique of heliotherapy, will be presented by the staff of the sanatorium

MOSES J STONE, M D, *Secretary*

HAMPDEN DISTRICT MEDICAL SOCIETY

A special meeting of the Society will be held in the rooms of The Springfield Academy of Medicine on Monday evening, May 20, 1935, at 8 15 P M

Subject "Medical Economics" Speaker Dr M A Tighe of Lowell Dr James R Miller of Hartford will also speak

General Discussion

H L SMITH, *Secretary*

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, MAY 20, 1935

Tuesday, May 21—

*12 M South End Medical Club Office of Boston Tuberculosis Association, 554 Columbus Avenue, Boston

†2 30-4 P M Ward Visit, Massachusetts Eye and Ear Infirmary

14-5 P M Seminar Pediatric Laboratory, Massachusetts General Hospital

Thursday, May 23—

*12 M Clinico-Pathological Conference Massachusetts General Hospital

†12 M Clinico-Pathological Conference Children's Hospital

Friday, May 24—

†12 M Clinical Meeting of Children's Medical Staff, Massachusetts General Hospital Ether Dome

Saturday, May 25—

*10-12 Staff rounds at the Peter Bent Brigham Hospital Open to practicing physicians

*Open to the medical profession
†Open to Fellows of the Massachusetts Medical Society

May 17—Boston University School of Medicine Surgical Clinic at the Boston City Hospital See page 954

May 17—The New England Roentgen Ray Society will meet at the Boston Art Club Dinner 6 45 P M Meeting 8 15 P M

May 21—The Trudeau Society See notice above

May 21—South End Medical Club will meet at the office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston at 12 noon

May 27—New England Heart Association See notice elsewhere on this page

June 3—Harvard Medical Alumni Association See notice above

June 3—Tufts Medical School Alumni Association See page 958

June 10—American Canadian Medical Golfers Play at Atlantic City. For details write Bill Burns Executive Secretary 4421 Woodward Avenue, Detroit.

June 10 and 11—American Proctologic Society will meet at the Marlborough-Blenheim Atlantic City. For information address Frank G. Runyon 1361 Perkleman Avenue, Reading Pa.

June 11—American Heart Association. The Eleventh Scientific Session will be held from 9:30 A.M. to 5:30 P.M. at the Hotel Claridge Atlantic City N. J. The program will be devoted to various subjects on cardiovascular disease. Gertrude P. Wood Office Secretary 60 West 50th Street, New York, N. Y.

June 11—American Neisserian Society will meet at the Hotel Claridge Atlantic City New Jersey

June 12 and 13—Academy of Physical Medicine Annual Meeting will be held at the Claridge Hotel Atlantic City N. J. For further details address Arthur E. Ring M.D. Secretary Treasurer Arlington, Mass.

June 17-19—The Medical Library Association will meet in Rochester New York. For information address Miss Frances N. A. Whitman, Librarian, Harvard University Schools of Medicine and Public Health, Boston Mass.

June 17 to 21—Convention of the Catholica Hospital Association will be held at Creighton University Omaha, Nebraska. For information address the Most Reverend Joseph Francis Rummel D.D. Bishop of Omaha.

June 24-25—American Urological Association and Western Branch Society American Urological Association will meet at the Palace Hotel, San Francisco California. For details write Dr. Charles P. Math 450 Sutter Street San Francisco, California

June 27-29 Inc.—British National Association for the Prevention of Tuberculosis will be held at Southport England. Persons desiring further information should write to Miss P. Rickland Secretary of the Association at Tavistock House North, Tavistock Square London W. C. 1, England

July 1-23—University of Freiburg I. Br. will hold a vacation course of the medical faculty. For information address Akademische Auslandsstelle der Universität Freiburg I. Br., Schwimmbadstrasse 8 Germany

July 22-27—Seventh International Congress on Industrial Accidents and Diseases Brussels Belgium. The American Committee of the Congress is under the chairmanship of Dr. Fred H. Albee New York, for the Section on Accidents, and that of Dr. Emory R. Hayhurst Columbus, Ohio for Industrial Diseases. The American delegation to the Congress will sail from New York on July 2 and visit London, Amsterdam, The Hague and Paris, and, optionally Budapest. Physicians interested in the Congress or in the medical tour in conjunction with it may address the Secretary Dr. Richard Kovacs 1100 Park Avenue New York City

October 7-10—American Public Health Association will meet in Milwaukee, Wisconsin. For information address the American Public Health Association, 50 West 50th Street, New York City

October 21-November 9—1935 Graduate Fortnight of the New York Academy of Medicine. See page 958 issue of May 9

DISTRICT MEDICAL SOCIETY

HAMPDEN DISTRICT MEDICAL SOCIETY

May 20—Special meeting See page 958.

BOOKS RECEIVED FOR REVIEW

Psychology and Health H. Banister 256 pp New York The Macmillan Company \$2.50

Sex Practice in Marriage C. B. S. Evans. 128 pp New York Emerson Books Inc. \$1.95

Useful Drugs. A list of drugs selected to supply the demand for a less extensive materia medica with a brief discussion of their actions uses and dosage. Prepared under the direction and supervision of the Council on Pharmacy and Chemistry of the American Medical Association. Edited by Robert A. Hatcher and Cary Eggleston Ninth Edition. 203 pp Chicago American Medical Association. \$60

Diseases of the Rectum and Colon and Their Surgical Treatment. J. P. Lockhart Mummery Second Edition 605 pp Baltimore William Wood & Company \$10.00

Female Sex Perversion The sexually aberrated woman as she is Maurice Chidekel 353 pp New York Eugenics Publishing Company \$6.00

Hoerber's Surgical Monographs. Corrective Rhinoplastic Surgery Joseph Safian 218 pp New York Paul B. Hoerber Inc \$9.00

Studies from the Rockefeller Institute for Medical Research Reprints. Volume 92 588 pp. New York The Rockefeller Institute for Medical Research 1935

Modern Motherhood Claude E. Heaton. A book of information on complete maternity care Prenatal—Delivery—Aftercare 271 pp. New York Farrar & Rinehart, Inc \$2.00

Ideal Health or the Laws of Life and Health Alexander Bryce. Third Edition 840 pp Baltimore William Wood & Company \$2.75

The Harvey Lectures. Delivered under the auspices of the Harvey Society of New York, 1933-1934 Drs. R. E. Dyer W. Mansfield Clark, and others Series XXIX. 262 pp Baltimore The Williams & Wilkins Company

L'Examen du Malade Guide clinique de l'étudiant et du médecin Médecine Chirurgie Obstétrique Neurologie et Spécialités P. Delmas G. Giraud et al. 318 pp Paris Masson & Cie 30 fr

Maimonides (The Rambam) The story of his Life and Genius. J. Müntz. Translated from the German with an introduction by Henry T. Schnitzkind. Octocentennial Edition 1935 238 pp Boston Winchell Thomas Company \$1.50

Failure of the Circulation Tinsley R. Harrison 398 pp Baltimore The Williams & Wilkins Company \$4.50

Diseases of the Heart. John Cowan and W. T. Ritchie With a chapter on The Ocular Manifestations of Arterial Disease by Arthur J. Ballantyne. Third Edition 681 pp Baltimore William Wood & Company \$9.00

Names of Surgical Operations Compiled and arranged by the Western Surgical Association through its Special Committee Edited by Carl E. Black. 102 pp St. Paul Bruce Publishing Company \$3.00

Wish and Wisdom Episodes in the vagaries of belief Joseph Jastrow 394 pp New York and London D. Appleton Century Company Inc. \$3.50

Hertzer's Monographs on Surgical Pathology Surgical Pathology of the Peritoneum Arthur E. Hertzer 304 pp Philadelphia Montreal and London J. B. Lippincott Co

Maladies Infectieuses. A. Lemerle 406 pp Paris Masson et Cie. 60 fr

Onchocerciasis. With special reference to the Central American form of the disease. Contributions from the Department of Tropical Medicine and The Institute for Tropical Biology and Medicine No. VI. Part I by Richard P. Strong Part II by Jack H. Sandground. Part III by Joseph O. Bequaert. Part IV by Miguel Muñoz Ochoa. 234 pp Cambridge Harvard University Press.

The Modern Method of Birth Control Thurston S. Welton. 168 pp New York Walter J. Black, Inc. \$3.00

the Doctor's Bill Hugh Cabot. 313 pp New
Columbia University Press \$3 00
Electrotherapy and Light Therapy Richard Kov-
Second Edition 696 pp Philadelphia Lea &
Ger \$7 50

BOOK REVIEWS

Mechanics in the Study and Treatment of
Disease Joel E Goldthwait, Lloyd T Brown,
Ernest T Swaim, and John G Kuhns 281 pp
Philadelphia J B Lippincott Company \$4 00

Goldthwait and his co-authors present their con-
ception of what is, and what is not, good body me-
chanics and the effects produced by faulty mechanics
on the body. Their presentation as to the definition
of normal body posture and mechanics is not neces-
sarily the universally accepted one. Their own per-
sonal experience over a number of years has devel-
oped in their minds certain conceptions of disease,
based upon reactions of the body in its entirety to
body mechanics. This must be considered as an
expression of opinion regarding the development
of all manner of diseases whose etiological factors
can be traced back by the authors to faulty body
mechanics. In support of their view a number of
illustrative cases are presented. These range from
osteomyelitis to diabetes, multiple sclerosis and cancer.

"Would that my adversary would write a book"
hardly be applied by anyone to this piece of work,
for use among the medical profession there is no
one, or group, with whom the reviewer is acquaint-
ed who offers upon a purely personal interpretation
of such etiological factors, form of treatment, and
clinical entities as those which are described here as
being due to faulty body mechanics.

However, unless a man has duplicated this work
with controls and made a study of a group of patients
for a number of years, he is in no position to ques-
tion specific statements of results obtained in the dis-
ease as described by the authors. "The proof of the
 pudding is in the eating." This book presents an in-
dividual interpretation quite in divergence to many
accepted and taught principles, facts of anatomy,
physiology and factors producing disease, hence the
reader may either believe or disbelieve. It is a mat-
ter of obtaining with a certain percentage of patients
results satisfactory from both the patient's and the
doctor's point of view, but the age-old difficulty
exists when one attempts to explain in detail how or
what certain results were obtained.

In 1922 a book was written whose title is Body
Mechanics and Health by L C Thomas and Joel E
Goldthwait. This book might be called a handy
pendium to the book, Body Mechanics, now being
reviewed. Its contents offer a concise description of
body structure, body types with their respective
essential functional disturbances, and an outline of
exercises. The 1934 publication of Body Mechanics
reverses many statements which, coming from a

group directed by Dr Goldthwait, cannot be en-
tirely disregarded even if one does not agree with
them in toto. Obviously the book represents the opin-
ions of these men and their reasons therefor, and no
one can fail to respect opinions based upon such clinical
experience as this group has had.

Osteomyelitis Its Pathogenesis, Symptomatology
and Treatment Abraham O Wilensky 454 pp
New York The Macmillan Company \$9 00

This book, as the title implies, is a monograph on
osteomyelitis, which, after an extensive historical
review, a consideration of the basic factors such as
the anatomy and physiology of bone and the phenom-
ena of bacterial infection, combines in an orderly
manner a general discussion of the disease with sta-
tistical data from the Mount Sinai Hospital (New
York City) and collected sources. There is an ex-
tensive chapter on pathology in which the author
emphasizes whenever possible that, "The most im-
portant and dominating single element in the entire
pathological development is the vascular throm-
bosis." He states, "From clinical evidence, it usually
seems to appear that the amount of bone involved
in any focus of osteomyelitis is many times much
larger at the very beginning of the process than some
time later. The physical basis for this phenomenon
lies in the relatively large primary involvement of
the bone by the embolus thrombus formation and
the accompanying disturbance of the blood supply in
the interior of the bone, and in the secondary con-
traction of the area of bone tissue thus involved be-
cause of the development of collateral circulation." Many
will question this idea and at times the author
seems to lose sight of the fact that there are other
factors which determine the distribution and char-
acteristics of the pathological picture.

There are in all nineteen chapters some of which
are relatively short. Such headings as "Symptoma-
tology," "Associated Lesions," which includes a dis-
cussion of complications such as joint involvement
and of sequelae such as disturbance of growth and
various deformities, "Roentgenology," "Treatment,"
and "Outcome" make up the longer chapters.

In his discussion of roentgenology, the author
again emphasizes the picture of the lesion as depend-
ent upon the primary vascular occlusion and sub-
divides the lesions into "Group A," which includes
"periosteal foci" and "cortical foci," and "Group B,"
"nutrient artery foci" which is subdivided into "pri-
mary branch," "subsidiary branch" and "terminal
foci." Each type of lesion is illustrated with roent-
genograms and the diagrams of the vascular lesion.
Granting that bacterial seeding in the vascular tree
is the primary mechanism, it would seem that the
author should give more attention to changes in the
bone secondary to the inflammatory reaction and
vascular changes secondary to the inflammatory
process occurring in relatively rigid walls. The
author should produce more evidence in order to

blame the primary vascular lesion as accounting almost entirely for the distribution of the process. Some of the roentgenograms in this section are not particularly commendable of these one might mention particularly an X-ray photograph of tuberculous of the hip which is anything but clear or suggestive of the picture usually seen in tuberculosis of the hip.

In the treatment of acute osteomyelitis the author suggests that there is no need to hasten in doing an operation. Other things being equal in the absence of a demonstrable bacteremia there should be no surgical attack upon the focus of infection in the bone and no operation of any kind unless suppuration develops and gathers in a well-defined abscess. The reason for the adoption of a conservative attitude is the possible avoidance of an operation of any kind." He then points out illustrative roentgenograms of cases unoperated. These are single roentgenograms in all instances and do not give an idea of the course of these patients. Of these, one is a small localized bone lesion (bone abscess) in the lower end of the radius with little density about the margins another is an extensive lesion of the humerus which was treated for six months for rheumatism. "At the time this picture was taken the symptoms had practically entirely subsided there was little swelling and there was perfect motion. The roentgenogram suggests activity if we may judge from the reproduction.

If there are positive blood cultures he suggests that there is ordinarily no hurry in rushing headlong into an operation. He advises that one should wait in all cases except those with increasing bacteremia. In the latter group he swings from his attitude of extreme conservatism to one of radical removal of bone tissue frequently into healthy areas.

In subsequent therapy he advises that dressing of the wound is neither necessary nor expedient until the time comes to do the secondary suture of the wound. He suggests that usually after ten to fourteen days secondary suture of the wound should be done.

In the treatment of acute osteomyelitis the author does not suggest alternate therapies and although we believe that a tone of conservatism in the treatment of osteomyelitis is a good one by and large, we think that his dictatorial attitude may give rise to misconceptions to those not familiar with the treatment of osteomyelitis.

No mention is made that the indicated therapy may vary as to the age of the patient. We are particularly critical of the author's statement that in joint complications especially in the hip and wrist, that "as long as the suppuration remains in the intact joint capsule, incision is not necessary." In the chapter on prognosis it would be interesting to know how many cases in the Mount Sinai series were treated by the method outlined by the author.

The final chapters discuss osteomyelitis of certain regions in which the disease is enough individual-

ized to warrant separate consideration "Osteomyelitis of the Skull, Osteomyelitis of the Jaws and Osteomyelitis of Vertebrae. Much of the material in these chapters as well as others has been previously presented by the author in various medical journals.

It is only to be expected that a book of this kind will get into controversial ground and whatever one feels about certain ideas of the author the book shows a tremendous amount of work is adorned with an extensive bibliography at the end of each chapter and is generously illustrated with roentgenographic and histological reproductions and tables.

It is not a "Bible of Osteomyelitis" and should be read with a critical attitude but anyone interested in osteomyelitis will find this book a distinct addition to his library.

How to Practice Medicine Henry W. Kemp 156 pp. New York: Paul B. Hoeber Inc. \$2.50

The art of medicine is an intriguing subject to many writers and some day someone is going to write an American essay that will complement Gibson's little attempt to expand John Locke's *Art Medicae* a dignified and charming piece of work more especially for Englishmen. The author of the book under consideration has hit 'way wide of the mark because while he uses an easy conversational "you and me" style which makes for effortless reading he addresses himself to a generation of doctors who are leaving the stage rather than the younger men who are just beginning their active careers. For good or ill, the top hat and flowing moustache as well as oracular pomposity have given way to the attached collar and colored shirt to the humanizing of the relations of doctor and patient to the simplified consultation to the sincere leveling influence of general education and culture. Few of us would care to adopt many of the ideas and attitudes of the author well intentioned though they are. The trained office assistant who can manage a typewriter keep a checkbook straight and do a venipuncture is a far more valuable person than the trimmest maid. One might question whether favorite prescriptions however dependable are not better left for the textbook. Likewise one should look elsewhere for advice on prenatal care, pediatrics and the care of old folks. New members of the county society should be urged to take part in the programs even if they do read their papers of ten such papers are far more intelligible than the rambling monologues of some of our seniors. One cannot escape the conclusion that Kemp has taken to himself few young confreres who should be to elder statesmen like himself a never-failing source of enthusiasm and inspiration. And finally like many medical books this should have been compressed into a pamphlet, when the introduction by far the best section would have made at least half the pamphlet.

Definite Diagnosis in General Practice W L Kitchens 1000 pp Philadelphia and London W B Saunders Company \$10 00

This is a new book, a book designed chiefly to simplify differential diagnosis. One cannot help being intrigued by the challenge of this unique book. There are two distinct divisions to the book. Part I presents 506 symptoms of 407 diseases alphabetically arranged. Part II is devoted to the 407 diseases also alphabetically considered, listing a series of symptoms under each disease. By use of the numbers in front of each symptom or disease, one is supposed to be able to arrive at the most likely diagnosis, the method of use being described in the early pages of the book.

The claim of the publishers that "the results you'll get will be truly amazing" appears, to the reviewer, to be exaggerated. For students its use is to be totally deprecated as their clinical knowledge will not be augmented by it.

There are a number of deficiencies present which tend to weaken considerably the value of the book. It appears fair to state that it makes no provision for the diagnosis of disease in its early stages. I doubt whether one could differentiate the various cardiac arrhythmias by its use. The classification of diseases does not conform with the latest one issued, and used by most hospitals. Although purporting to include atypical conditions one is unable to find any data relating to such conditions as abdominal angina and hence nothing to aid in the differentiation of it and gall bladder disease. Abdominal migraine, brain abscess, swelling (edema) of eyelids in nutritional deficiency, ulcers of the esophagus are either omitted entirely or inadequately treated. For example under pain in the thigh (I, 58) no mention is made of bone neoplasms but Raynaud's disease is included, a most unusual symptom. Under hypometabolism is listed only colloid goitre with no mention of myxedema, on the other hand hypometabolism includes adenomatous and exophthalmic goiter and no mention is made of the leukemias or cardiac failure. Boas Oppler bacilli are stated as being present in gastric malignancy with out, however, intimating the underlying obstruction and hence omitting benign obstruction.

These are only a few of innumerable similar points culled from the book. The claim is made that the work is not complete and that space is deliberately allowed to be filled in by the reader. But is this sufficient justification for the omission of so many points, some important, some minor? Aside from the omissions there are also factual errors as describing the large lymphocytes as macrophages (p 458, I), the presence of myelocytes in aplastic anemia (p 462, I) and separating anterior poliomyelitis and infantile paralysis as two entities (p 473, I).

The reviewer cannot agree with Dr Musser who states in his foreword that the book will "shorten the time period in which the busy doctor could make a diagnosis" and who at the same time also states that it will foster more intensive study of the patients and stimulate collateral reading.

The attainment of skill in differential diagnosis is a true intellectual pursuit and it is axiomatic that the short circuited path toward knowledge invariably ends in a culdesac.

There are occasions in the course of practice where the germination of an idea may be sufficiently provocative to lead to a reasoned diagnosis and the book contains many such hints. On the whole the reviewer doubts whether the arrival at a diagnosis by the method of mechanical elimination will prove valid.

Studies from The Rockefeller Institute for Medical Research Reprints Volume 91 598 pp New York The Rockefeller Institute for Medical Research, 1934

This group of reprints, covering the recent work of the departments of the laboratory, of the hospital, and of animal and plant pathology, covers a wide range of subjects. Brief reports are included on factors inhibiting or enhancing tumor growth, on the relation of skin lymphatics to burns, and many other subjects. The results of a study of Rhoads, Castle and others in Puerto Rico on the hookworm anemia are presented in considerable detail in this number and bring out the practical importance of treating the anemia first and the parasitism second.

Allergy and Applied Immunology Warren T Vaughan Second Edition 420 pp St Louis The C V Mosby Company, 1934 \$5 00

The fact that a new edition of this book has become necessary in three years is strong evidence of its usefulness and popularity. In this new edition, nothing has been deleted from the original which is reprinted in its entirety.

The new edition has sixty-one more pages than the old. Several small sections have been added and others amplified chiefly to include discussion of the increasing knowledge of contact dermatitis with the importance of patch tests and the great increase in the number and variety of substances to which certain individuals may be sensitive. Several of the hay fever charts have been changed and to great advantage. Finally, an appendix has been added. It gives directions on various practical topics in some detail, a questionnaire for history taking, a check list of foods, food diaries, symptom records, and a series of suggested menus with the recipes to go with them. The bibliography has been increased from 298 to 318 references. It is unfortunate that, as in the first edition, the references in the text are made only by number and do not include the author's name.

The book still lacks balance and the arrangement could be simplified and improved. The pollen section is too long and too scientific for the layman, while much of the text is too childish for the doctor. Nevertheless, the book as a whole is very readable and it contains a wealth of practical suggestions to help both the professional and the lay reader. It can be recommended to all.

The New England Journal of Medicine

VOLUME 212

MAY 23, 1935

NUMBER 21

THE RELATIONSHIP OF CORONARY ARTERIOSCLEROSIS TO AURICULAR FIBRILLATION WITH SPECIAL REFERENCE TO THE TERM "ARTERIOSCLEROTIC HEART DISEASE"*

BY MORTON G. BROWN, M.D.†

AURICULAR fibrillation is one of the most common and most important disturbances in the cardiac rhythm and is frequently associated with rheumatic heart disease, especially mitral stenosis. It is also known to be associated with a variety of other conditions. Many of the cases in the latter group are called "chronic myocarditis." Although such cases frequently show disease of the heart muscle a careful analysis will enable one to arrive at a more definite etiological or anatomical classification. Furthermore, as will be seen below there are some cases designated "chronic myocarditis" that prove to have no significant heart disease. This study, of all the cases coming to postmortem examination at the Peter Bent Brigham Hospital between the years 1913-1933 which gave evidence of auricular fibrillation during life, excluding those clinically diagnosed as rheumatic valvular disease, was therefore undertaken. The purpose of this investigation was to see what types of cases apart from those with valvular disease were associated with auricular fibrillation and particularly to investigate the relationship between coronary arteriosclerosis and auricular fibrillation.

There were 119 cases available for this study, twenty-one of which were classified as having had permanent auricular fibrillation and twenty-eight as having had transient attacks. Any patient who entered the hospital with auricular fibrillation and died, even after a short stay, was classified as having had permanent fibrillation. Most of these, however, were known to have had this irregularity for months or years. On the other hand, a patient who entered with a normal rhythm and developed auricular fibrillation preceding death, even though the irregularity was maintained for one week or so was classified as having had transient fibrillation. In this latter group there were fifteen cases that could be called terminal auricular fibrillation. Although this division is somewhat arbitrary it gives one a fair indication of what we look upon

as permanent in contrast to paroxysmal auricular fibrillation. We do not intend that these figures be interpreted as reflecting the frequency of the irregularity in living patients, for this study was confined entirely to fatal cases.

The entire series of cases was subdivided into different etiological groups (table 1). The two

TABLE 1
INCIDENCE OF AURICULAR FIBRILLATION IN
NON VALVULAR HEART DISEASE

Diagnosis	Permanent Fibrillation		Transient Fibrillation	
	No of Cases	%	No of Cases	%
Hypertensive Heart Disease	22	30.0	10	45.5
Coronary Artery Disease	6	8.3	3	13.5
Hypertension and Coronary Artery Disease	36	49.3	9	41.0
Unknown Etiology	9	12.4		
Total	73	100	22	100

main features analyzed were hypertension and disease of the coronary arteries. Cases were regarded as having disease of the coronary arteries if they showed well marked narrowing due to atheromatous plaques or thrombosed vessels or if the calcification of the arteries was extensive. If they showed only minor or slight arteriosclerotic changes they were regarded as normal because the great majority of these patients were over fifty years of age. Those who had enlarged hearts with or without cardiac symptomatology and no detectable cause were grouped together under the term "unknown etiology."

Cases were regarded as hypertensive even when the blood pressure was found to be normal, if previous observations had revealed a persistent elevation in the pressure. There were numerous such instances. The striking thing to note in table 1 is that hypertension, with or without coronary artery disease is an etiological factor in 79.3 per cent of those with permanent fibrillation and in 86.5 per cent of those with transient fibrillation. In other words, about four fifths of the entire series had had hypertension. Curiously enough these figures are not unlike those published by Fahr who found that about 75 per cent of all cases with chronic heart

From the Medical Clinic of the Peter Bent Brigham Hospital. This work was done in part under a grant from the Proctor Fund of the Harvard Medical School.
Read by Dr. R. A. Levine before the American Heart Association June 12, 1934.

Morton G. Brown, M.D.—Former Graduate Assistant in Medicine, Peter Bent Brigham Hospital. For record and address of author see This Week's page 323.

muscle disease were associated with hypertension¹

The relationship between angina pectoris and auricular fibrillation has been of some interest. Anginal attacks have been supposed to occur rather infrequently with auricular fibrillation². Similarly, acute coronary occlusion is comparatively rare in those who previously had permanent auricular fibrillation³. On the other hand, transient fibrillation commonly occurs during the acute stages of coronary occlusion and occasionally this irregularity may remain permanent after such an attack⁴. The data obtained in this study confirm the above considerations, for there were only three instances of angina pectoris among the cases with auricular fibrillation. In each case pathological examination showed definite evidence of coronary artery disease. Likewise, there were only two in whom it was known that auricular fibrillation was present before the development of coronary thrombosis. There were two others in whom the irregularity developed after the attack and in seven the time relationship between the irregularity and the coronary attack was not known. It is important to realize that the eleven cases with coronary occlusion and auricular fibrillation represent only a small fraction of the cases of coronary disease that have come to postmortem examination in this hospital, as all the others had a regular rhythm.

Although auricular fibrillation is rare in living patients with angina pectoris, this pathological study disclosed a considerable number with gross coronary artery disease that had auricular fibrillation. From this one might suspect that the presence of the arrhythmia held the anginal syndrome in abeyance even when there was significant disease of the coronary arteries. There were forty-two with permanent and twelve with transient auricular fibrillation in this group. Most of these, however, had hypertension. In fact, there were only six cases of coronary artery disease without hypertension that had permanent fibrillation and three that had transient fibrillation. Even in some of these, there may well have been a previous hypertension, for it is well known that a coronary occlusion may permanently lower the blood pressure. Four of these nine patients with normal blood pressure and coronary artery disease had a coronary attack previous to admission to the hospital. Three additional patients had chronic vascular nephritis at the time of death. This can also be regarded as indirect evidence of a previous hypertension^{1, 4, 5}. All this strengthens the opinion, that coronary artery disease by itself is not very material as a factor in the development of permanent auricular fibrillation but that hypertension is most important.

The fourth group consists of nine patients in

whom the etiology of the heart disease was unknown. They all had persistent auricular fibrillation and appreciable cardiac enlargement. The average weight of the heart at postmortem examination was 540 Gm. The average age of these patients was sixty. In none was hypertension found, though in several it was suspected that a previous hypertension existed. In none was there marked disease of the coronary arteries although some showed minor changes. It is curious that they all were males. For want of a better method of classification one may regard this group as cases of auricular fibrillation occurring in elderly people with large hearts.

Besides the above four groups having auricular fibrillation that were regarded clinically as occurring in non-valvular disease, there were two other groups that require special attention. The first group comprises nine cases of well defined heart disease. Seven of these had permanent fibrillation and two had transient fibrillation. Of these, two had aortic stenosis, one had mitral stenosis, one had coarctation of the aorta, two had chronic adhesive pericarditis, one had acute vegetative endocarditis, another had purulent pericarditis and one had aneurysm of the aorta. It is clear from these nine cases that occasionally other cardiovascular diseases besides hypertension, coronary artery disease and valvular disease are found associated with auricular fibrillation. It is also evident that some cases of stenosis of the valves are overlooked in the presence of auricular fibrillation. It occurred in three instances here. With more extensive experience other cardiovascular abnormalities may be found associated with auricular fibrillation.

The second of these two groups comprises fifteen cases in which no heart disease could be found at postmortem examination. There were twelve females and only three males. Eleven had permanent and four had transient fibrillation. In some ways this is the most interesting and most important group of the entire study. The average heart weight of this group was 300 Gm. It is common knowledge now that auricular fibrillation occurs frequently in hyperthyroidism^{6, 7, 8}. This is so both in the condition recognized as exophthalmic goitre and in that called masked hyperthyroidism^{9, 10}. It was to be expected that in the past some cases of this latter type would have been overlooked. In fact, there were five such cases of hyperthyroidism in this group, only one of which was recognized during life. In recent years these errors are rarely made as the problem is much better understood and hyperthyroidism is now routinely suspected as a cause of auricular fibrillation when there is no other adequate explanation. This relationship must always be borne in mind for it is the one condition in which appropriate treatment to the underlying cause can permanently establish a normal rhythm and

greatly improve the efficiency of the circulation.

In this same group showing no evidence of heart disease, there were six cases that died of pneumonia. It is known that auricular fibrillation develops in a small percentage of cases suffering from pneumonia.¹¹ This and the inevitable development of pneumonia in some patients who had persistent auricular fibrillation account for these six cases mentioned above. The remaining four were miscellaneous instances such as carcinoma and the like in which auricular fibrillation was present in a heart which was otherwise normal. It is not surprising even in these fatal cases that persistent and transient fibrillation was met with occasionally in patients who had no evidence of organic heart disease. This is in accord with actual practical experience.¹² There is a small group of individuals in whom, apparently, auricular fibrillation may be regarded as a functional arrhythmia just as extrasystoles or paroxysmal tachycardia. The possibility of latent hyperthyroidism must be considered, but in some no evidence of disease apart from the arrhythmia can be found. It is of some interest that of these fifteen cases showing a normal heart the only ones who died of

groups. The study of heart weights revealed that on the average the male heart weighed more than the female and that cases with permanent fibrillation had larger hearts than those with transient fibrillation (table 3).

TABLE 3

AVERAGE HEART WEIGHTS

Diagnosis	Permanent Fibrillation		Transient Fibrillation	
	Males	Females	Males	Females
Hypertensive Heart Disease	647	481	562	468
Coronary Artery Disease	591	—	543	—
Hypertension and Coronary Artery Disease	608	540	530	476

It was of some interest to look into the immediate cause of death in these cases. The results are indicated in tables 4 and 5. A ma

TABLE 4

IMMEDIATE CAUSE OF DEATH

Diagnosis	Cardio-vascular	Renal	Others	Unknown
Hypertensive Heart Disease	23	2	5	2
Coronary Artery Disease	7	—	2	—
Hypertension and Coronary Artery Disease	30	2	12	1
Unknown Etiology	2	—	5	2
Total	62	4	24	5

jority died of some form of cardiovascular disease. There were only four who died of renal disease, and the others died of infection, after operation and miscellaneous causes. In analyzing the type of cardiovascular death in greater detail it was found that forty two died of congestive failure in fifteen of which pulmonary infarction played a significant rôle. Eight died

TABLE 2

SEX DISTRIBUTION

Diagnosis	Males	Females
Hypertensive Heart Disease	19	13
Coronary Artery Disease	9	0
Hypertension and Coronary Artery Disease	29	16
Unknown Etiology	9	0
Total	66	29

congestive heart failure were three that had hyperthyroidism.

In this entire series males predominated. There were sixty six males and twenty nine females (table 2). There were no distinguishing

TABLE 5

TYPE OF CARDIOVASCULAR DEATH

Diagnosis	Con- gestive Fail- ure	Cere- bral Hemor- rhage	Coro- nary Throm- bosis	Other Throm- bosis	Pul- monary Edema
Hypertensive Heart Disease	17	4	—	2	—
Coronary Artery Disease	1	—	3	2	1
Hypertension and Coronary Artery Disease	22	4	2	1	1
Unknown Etiology	2	—	—	—	—
Total	42	8	5	5	2

points of interest in those with transient as compared with those with permanent fibrillation. The ages ranged from thirty nine to eighty nine with 70 per cent of the cases falling between the ages of fifty and seventy. Nothing of significance could be learned in this study with relation to age and various clinical sub

of cerebral hemorrhage five of coronary thrombosis and the remainder of other causes. The significant features in this aspect of the study are that renal insufficiency is a rare complication and that pulmonary infarction is common.

The above study of cases of non valvular heart disease naturally led us to analyze criti

cally the term "arteriosclerotic heart disease" This term has recently come into common usage and for reasons mentioned below seems to us to be misleading and possibly a misnomer. It is used by some to include all types of degenerative heart disease. In the minds of others it denotes coronary artery sclerosis and to a third group it indicates heart disease resulting from peripheral arteriosclerosis. It is obvious that patients with hypertension and myocardial failure or those with a known previous hypertension with a subsequent normal pressure level who have myocardial insufficiency may well be classified under the term hypertensive heart disease. In a considerable group of others, whether hypertension is present or not, if a complete clinical survey of the case is made, sufficient data will be obtained to warrant a

pressure was normal in all and there were no signs or symptoms of cardiac disease. They all had well-marked peripheral sclerosis on examination of the radial, brachial, temporal and retinal arteries. These patients died of sundry causes such as pneumonia, carcinoma, and leukemia, and on postmortem examination showed marked sclerotic changes in the aorta, hepatic, renal, iliac, and cerebral arteries. In not a single case was there any arteriosclerosis of the coronary vessels. The hearts were all of normal size, the average weight being 294 Gm.

Not included in this survey were numerous cases with mild peripheral sclerosis but with no coronary sclerosis and others with marked peripheral sclerosis and only slight changes in the coronary arteries. The ten cases illustrated in table 6 offer sufficient evidence for the opin-

TABLE 6

Age	Blood Pressure	Peripheral Sclerosis	Heart Weight	Pathological Findings [§]	Cause of Death
63	115/95	++++*	300	Sclerosis of aorta, splenic and cerebral arteries	Polycythemia vera
60	128/87	++++	350	Aorta +++	Diabetes and Infection
77	110/70	+++	250	Aorta +++	Pneumonia
54	120/73	+++	290	Sclerosis of aorta, splenic, renal and mesenteric arteries	Mesenteric Thrombosis
57	90/55	+++	360	Aorta ++++ Mesenteric Sclerosis	Primary Anemia
71	116/70	+++	290	Aorta ++++	Lymphatic Leukemia
70	140/88	+++++	360	Aorta +++	Carcinoma of Stomach
72	130/70	+++	290	Sclerosis of aorta, hepatic, renal and iliac arteries	Postoperative
82	120/75	+++	260	Aorta ++++	Carcinoma of Bladder
64	155/65	+++	190	Aorta +++	Lymphatic Leukemia

* +++ Indicates marked peripheral sclerosis and retinal changes

+ + + Indicates marked peripheral sclerosis without retinal changes

§ All but those marked +++ even showed extensive arteriosclerotic ulcerations

diagnosis of coronary artery sclerosis. This is naturally simpler if angina pectoris is present or if there has been a coronary thrombosis. Even when these two conditions are absent in their typical forms the anatomical diagnosis of coronary artery sclerosis may be made clinically in many cases. To be sure there are some in which this prediction is difficult or impossible.

The present terminology has been most confusing because peripheral arteriosclerosis in itself has been regarded by some as being a direct cause of myocardial weakness and by others as a definite indication that the coronary arteries are also sclerosed. With this in mind the postmortem material of the Peter Bent Brigham Hospital was searched for cases in which there was marked evidence of peripheral arteriosclerosis but in which the hearts were essentially normal on pathological examination and in which there was no clinical evidence of myocardial insufficiency during life. There were ten such instances varying in age from fifty-four to eighty-two (table 6). The blood

ion that extensive peripheral arteriosclerosis can be associated with normal coronary arteries and such well-marked sclerotic changes need produce no harmful effects upon the efficiency of the heart.

SUMMARY AND CONCLUSIONS

An analysis was made of all cases coming to postmortem examination at the Peter Bent Brigham Hospital in the years 1913 to 1933 that showed auricular fibrillation exclusive of those with known rheumatic valvular disease. Particular attention was paid to the relation between this irregularity and disease of the coronary arteries. There were 119 cases, ninety-one that had permanent and twenty-eight that had transient auricular fibrillation.

Hypertension was an etiological factor in 79.3 per cent of the cases with permanent fibrillation and in 86.5 per cent of the cases with transient fibrillation. Significant disease of the coronary arteries although fairly frequent among those with hypertension was not common as the sole

factor in the development of permanent auricular fibrillation. Angina pectoris and coronary thrombosis were comparatively rare in patients who had had auricular fibrillation. There was a group of nine cases that was classified as of undetermined etiology that had no significant coronary artery disease or known previous hypertension.

There were nine cases showing other forms of heart disease such as pericarditis and unrecognized stenosis of one of the valves. Finally there were additional fifteen instances with auricular fibrillation that had no disease of the heart, five of which had hyperthyroidism.

Males predominated over females in a proportion of two to one and the ages ranged from thirty nine to eighty nine with the majority between the years fifty to seventy. The heart weight was greater in the males and with permanent fibrillation than in the females or with transient fibrillation. Although congestive failure was the most common cause of death it is of interest that pulmonary infarction was quite frequent and renal insufficiency rare.

Evidence is presented that marked peripheral

sclerosis of itself need be no indication that the coronary arteries are sclerosed, nor that the efficiency of the heart is in any way altered. From this we therefore suggest that the term arteriosclerotic heart disease should be given up entirely or clarified in its expression.

I wish to express my appreciation to Dr S A Levine for his helpful suggestions.

REFERENCES

1. Fahr G E: Hypertension heart. *J A. M. A.* 80 981 1925
2. Levine Samuel A: Angina pectoris. *J A. M. A.* 79 923 19 3
3. Levine Samuel A: Coronary thrombosis. Its various clinical features. *Medicine.* 8 246 19 9
4. O'Hare, J. P., and Walker W G: Arteriosclerosis and hypertension. *Arch. Int. Med.* 33: 343 1934
5. O'Hare, J. P., Calhoun, A. W., and Abbott, H. O.: Etiology of chronic myocarditis. *J A. M. A.* 99 1136 19 3
6. Hamilton, B E: The heart in toxic thyroid states. *Surg. Clin. N. A.* 4: 1411 1924.
7. Anderson, J. P: Auricular fibrillation associated with hyperthyroidism. *Ann. J. Med. Sc.* 178: 788 1937
8. Dunhill, T. P.; Fraser, P. R., and Stott, A. W.: Auricular fibrillation in thyrotoxic conditions. *Quart. J. Med.* 17 226 1924
9. Levine, Samuel A. and Sturgis, C. C.: Hyperthyroidism masked as heart disease. *Boston M. & S. J.* 150 33 1924
10. Lohr, F. H., and Hamilton, B. E.: Thyrocardiacs. Their diagnostic difficulties, their surgical treatment. *B. R. Gynec. & Obst.* 39: 10 1924.
11. Cohn A. R. Quoted by *Oxfr. Med. Medicine.* 4: Page 336 (1.)
12. Foster W. M., and Baldrige, C. W.: Auricular fibrillation as the only manifestation of heart disease. *Ann. Heart J.* 8: 182 1930-31.

MASSACHUSETTS TUBERCULOSIS LEAGUE

THE PREVENTION AND CONTROL OF TUBERCULOSIS IN THE COMMONWEALTH OF MASSACHUSETTS, WITH SPECIAL REFERENCE TO THE ACTIVITIES OF THE MASSACHUSETTS TUBERCULOSIS LEAGUE*

BY FREDERICK T. LORD, M.D.†

THIS is the twenty-second anniversary of the establishment of the League. During the past year Miss Theresa McQuaide resigned after eleven years of efficient and devoted service as secretary and office manager. Her place has been taken by Miss Toba Metcalf. There have been no other changes in the personnel of the Staff and I take pleasure in reporting that the work has been carried on in a satisfactory and efficient manner. We are indebted to Dr Philip P. Jacobs, Director of Publications and Extension of the National Tuberculosis Association for many helpful suggestions as a result of his survey of the activities of the affiliated organizations. The Institute for tuberculosis workers from February 4 to 9 under his direction afforded a valuable opportunity for members of the volunteer organizations in New England to benefit by his advice in planning a comprehensive program of service.

Dr George H. Bigelow as Honorary Vice President, 1926-1934, took an active part in

Annual Report of the President, given at the Annual Meeting, Boston, April 9, 1935.

†Lord, Frederick T.—President, Massachusetts Tuberculosis League. For record and address of author see This Week's Issue—page 929.

the councils of the League. He was a distinguished and inspiring leader, a public-spirited citizen with initiative, boundless energy, the highest ideals, breadth of vision and exceptional organizing ability, resourcefulness and courage. Admiration for his qualities can be expressed in no ordinary terms. Such brilliance of mind, humor and charm of personality are rarely combined. His achievements in his chosen field and promise for the future make his loss to the League and the cause of Public Health irreparable.

As in previous years encouragement may be found in the continuing decline in the mortality from tuberculosis in the Commonwealth.

DECLINING MORTALITY

The mortality from the pulmonary form of tuberculosis has fallen during the past 77 years from 395 per 100,000 living to 47.7 deaths in 1933 and 43.8 in 1934. Improved standards of living and a diminishing amount of community infection are largely responsible. With the continuance of the depression, reduced incomes and consequent lowering of economic levels make it

especially important to use our resources to the greatest advantage

SCOPE OF THE PROBLEM

The extent of the problem of pulmonary tuberculosis in the Commonwealth may be estimated on the basis of an annual average of 2000 deaths for the past three years. Assuming nine active cases for each annual death, there are probably 18,000 active cases in the State. Approximately 27,000 known cases of pulmonary tuberculosis are recorded in the files of the State Department of Health, including all cases without regard to activity reported since 1915, minus those withdrawn when the death notice is received.

The number of new cases of pulmonary tuberculosis reported in 1934 was 3669, an increase of 128 over the total reported in 1933. This increase is ascribed by Dr. Pope (personal communication) to improvement in case-finding methods in consequence of the establishment of outpatient departments and consultation clinics by the State and County Sanatoria, rather than to any actual increase in the number of those with the disease in the State.

In spite of the encouraging decline in mortality, tuberculosis is still one of the leading causes of death between the ages of fifteen and forty, the most productive and useful period of life. The decline in the death rate proceeds at a slower rate with each decade and the end of the fight is not yet in sight. Newer methods of attack on the problem maintain an unabated demand on our resources.

COMPLETION OF THE TEN-YEAR PROGRAM

The Ten-Year Program was initiated by Dr. Henry D. Chadwick and is under the charge of Dr. Alton S. Pope, Director of the Division of Tuberculosis, to whom I am indebted for the statistical data. School children have been investigated on a Statewide scale, for the ten years preceding June, 1934. In the course of the survey, of an enrollment of 991,113 children in the investigated schools, 400,591 (40.4 per cent) were tested with tuberculin by the von Pirquet method. Of this number, 100,025 (25 per cent) reacted. Physical examination was done on 117,777 and an x-ray examination on 103,462.

INCOMPLETE PUBLIC SUPPORT OF THE PROGRAM

During the first three years, 1924-1925 to 1926-1927 inclusive, groups of children were selected from known contacts, underweights and suspects referred by local physicians and school nurses and from 10.1 per cent to 17.4 per cent of the children in the investigated schools were tested. During the last seven years, 1927-1928 to 1933-1934 inclusive, the attempt was made to examine all children without selection and the percentage tested was 54.8 per cent, 48.3 per

cent, 56 per cent, 57.8 per cent, 68 per cent, 63.5 per cent and 64.3 per cent in sequence by years. During the last four years (1930-1934) the enrollment in the investigated schools numbered 308,765 in the grade and 88,198 in the high schools, or a total of 396,963 children. Of the 308,765 grade school children 201,725 or 65.3 per cent were tested, and of the 88,198 high school children 49,925 or 56.7 per cent. Thus, approximately two out of every three were tested in the grades and somewhat more than one out of two in the high schools. Lack of consent by parents is almost wholly responsible for the withholding of the advantage of the investigation from so large a proportion of children.

The proportion of consents gradually increased during the progress of the investigation, but remained constantly lower in the high than in the grade schools. A lower proportion of consents in the high schools may be ascribed to participation of the more mature students themselves in the family council and their influence in making an adverse decision. We should, I think, regard the failure to make the investigation more generally available as an indication of our shortcomings in health education. In the continuance of the investigation of school children in connection with the work of the State and County sanatoria parental consents should be obtained in more nearly 100 per cent and the responsibility of the League and the affiliated organizations in this matter is obvious.

INCIDENCE OF TUBERCULOUS INFECTION IN THE SCHOOL CHILDREN IN MASSACHUSETTS

Twenty-five per cent of the tested children reacted to tuberculin. Pope (*New Eng J Med*, Oct. 19, 1933) finds that the rate of reaction rises quite regularly from about 10 per cent to 15 per cent at the age of five, to about 45 per cent to 55 per cent at the end of high school life without substantial difference in the reaction rates in boys and girls.

INCIDENCE OF THE CHILDHOOD AND THE ADULT TYPE OF TUBERCULOSIS IN CHILDREN

Investigation of school children by x-ray examination of the reactors shows that 56.20, or 1.40 per cent of those tested with tuberculin had the childhood type of the disease or between one and two out of every hundred and 5.62 per cent of the reactors or from 5 to 6 out of every hundred. With respect to the adult type of tuberculosis in children in a group of 100,000 school children examined in 17 Massachusetts cities, Pope (*New Eng J Med*, Oct. 19, 1933) finds the incidence of the adult type, at 10 to 14 years of age, eighteen, and at 15 to 19, sixty-five per 10,000 reacting children and estimates at least 1800 cases of pulmonary tuberculosis in such children from 10 to 19 years of age in the State.

A large proportion are unrecognized and uncared for victims of the disease. In the 10 to 14 year group the morbidity is one and one-half times as high and in the 15 to 19 year group three times as high among girls.

THE CONTINUING PROGRAM

In accordance with the original plan, the State Department of Public Health terminated the Ten Year Program in June, 1934 thus completing the most extensive project ever undertaken for the investigation of tuberculosis in school children. Results of far reaching importance for Massachusetts and other communities, have been obtained in demonstrating a practical method of determining on a large scale the prevalence and importance of the disease in children, the significance of contact, the recognition of the family as an important source of contagion, the outlook with the different types of tuberculosis in childhood and the appalling gravity of the adult type in children. Though the program is completed it is fortunate that the State Department of Public Health will continue the follow up of tuberculous children already discovered in the Chadwick Clinics. Otherwise a valuable opportunity of service to the children and the community and desirable information regarding the outlook over a longer period of observation would be lost. Continuance of the advantages derived from the Ten Year Program now becomes in large measure a local responsibility. The routine examination of school children annually in the 7th 9th and 11th grades, family contacts and patients referred by physicians and public health nurses can be carried out in a few of the larger cities under the direction of the local Board of Health. For a large proportion of the smaller communities a traveling clinic will be available on request of the local Board of Health and local school committee to the State or County sanatorium of the district in question, except in the few instances where the towns are near enough to the sanatorium to have the work done there. For isolated communities where the county sanatoria are unable to furnish such service the State Department of Public Health provides portable x ray units and a clinic unit until the entire responsibility can be taken over by the local community.

THE HAZARD OF TUBERCULOSIS ARISING FROM UNCONTROLLED NATURAL INFECTION AND REINFECTION

The first infection type of tuberculosis, of itself benign tends to heal without significant destruction, with the formation of fibrous tissue and the deposition of calcium in the involved area. Endogenous or exogenous reinfection in allergic individuals is not benign likely to result in destructive lesions and may lead to dangerous or fatal disease.

The follow up of groups of children with positive and with negative tuberculin tests by Myers (*J A M A*, Nov 17, 1934) and by Pope (personal communication) shows that the chance of developing clinical tuberculosis is many times greater in those with positive than in those with negative tests. Pope (personal communication) finds that the pulmonary form of the disease develops three to four times as often in the group with the childhood type of tuberculosis as in those with positive tuberculin tests without x ray evidence of disease.

The appalling gravity of the adult type of tuberculosis in children is emphasized by the experience in follow up in the Chadwick Clinics. Of eighty-eight children in whom this diagnosis was made during the years 1924 to 1929 Pope (*New Eng J Med*, Oct 19 1933) reports that twenty five (28 per cent) have died seven were unimproved and twenty four could not be traced. Only nine appear to be entirely well. The group includes all pulmonary cases discovered during the first five years of the clinics. Contact was broken in nearly all cases whether the child remained at home or went to a hospital, as was the case in more than half of this group.

There is no evidence of increased resistance arising in consequence of exposure to tubercle bacilli under the conditions of uncontrolled natural infection and reinfection and under such circumstances dangerous or fatal disease may result. It should be a special concern of the League and its affiliated organizations so far as possible to prevent all infection and especially to prevent massive infection.

IMPORTANCE OF CONTACT

The findings in the Ten Year Program emphasize the important relation between contact with the disease and the frequency and severity of the resulting infection in children. Thus more than twice the number of children react to tuberculin under exposure. The proportion of children with the childhood type of tuberculosis is greatly increased by contact and amounted during 1932 1934 to 290 (12.6 per cent) of 2305 contact children while only 948 (0.812 per cent) of 116,818 non-contact children were found to have the disease. In Zaek's (*New Eng J Med*, 204 1037 1039, May 14 1931) study of 110 children with pulmonary tuberculosis there was a history of contact with an open case in the family in sixty five per cent. From the point of view of the patient and the community no investigation is complete without the discovery of the source of infection.

IMPORTANCE OF EARLY DIAGNOSIS

The discovery of pulmonary tuberculosis is of relatively little value to the patient and the community unless the diagnosis is made early and the effort to make it early has in large meas-

ure failed Bigelow and Pope (*New Eng J Med*, 208 251, Feb 2, 1933) find that over 80 per cent of all patients occupying sanatorium beds are classed on admission as moderately or far advanced and as shown by Langmuir, Williams and Pope (*ibid*, July 5, 1934) the outstanding factor in the mortality and expense from the disease is the initiation of treatment late in its course

Seders (The Costs of Tuberculosis with Special Reference to the Adequacy of Medical Care and Treatment N T A Soc Research Series, No 5) finds that the costs of illness including wage loss mount rapidly from \$2750, with the lapse of six months between the first symptoms and the diagnosis, to \$3125 from six months to less than twelve, and \$3950 after one year or over

CASE-FINDING

The remedy is to be found in an appreciation that in a large proportion of patients with early tuberculosis there are no significant symptoms or physical signs, that the disease can be recognized in its early stages only by x-ray examination and that the most effective method of case-finding would be to investigate all members of the population. Failing in this on account of the expense, the alternative is to select available groups with more than the average chance of the disease

EXAMINATION OF FAMILY AND OTHER CONTACTS

During the last eighteen months of the Ten-Year Program, the project included in a number of towns the examination of the immediate members of the family of all tuberculous school children. In the continuing program the annual investigation of children should also include the families of the tuberculous children. The discovery of the disease may be expected by this means in one in every four or five family contacts. All household contacts of tuberculous patients in the State, County and Municipal Sanatoria and in the practice of physicians should likewise be examined. Facilities for this purpose are now fortunately available on request by physicians through the State and County Sanatoria and by extension of their service to include localities not covered by municipalities

It should, in addition, be part of the program to have an annual x-ray examination of all school teachers as a matter of protection for the children. Chadwick (*New Eng J Med*, Aug 2, 1934) reports that of 250 Michigan school teachers in the smaller communities 2 per cent were found to have pulmonary tuberculosis

Nurses in hospitals should be routinely investigated by the tuberculin test and x-ray examination at the time of enrollment and the x-ray examination repeated at intervals of every six months thereafter with repetition of the tuber-

culin test in those previously negative. A large proportion become infected under exposure to tuberculous patients, as indicated by the appearance of a positive tuberculin test. Discoverable lesions of the primary and reinfection type develop under observation in a larger proportion than is to be expected in individuals not so exposed. Amberson and Riggins (See Amberson, N T A, 1934, p 204) in the x-ray investigation every six months of 380 nurses at Bellevue eighteen years of age or older, found 12 (3.15 per cent) new cases of tuberculosis, ten in the minimal and two in the early moderately advanced stage. Of ninety-six nurses in training schools in Detroit followed by Altshuler (*ibid*, 1934, p 366) six (6.25 per cent) developed pulmonary tuberculosis, five the primary and one the reinfection type. Kristenson (Zur Kenntnis der Tuberculosefrequenz beim weiblichen Krankenpflegepersonal, *Acta tuberc Scandinav* 6 117-230, 1932) in an investigation of 425 nurses at the University Hospital at Uppsala discovered forty (9.4 per cent) with pulmonary tuberculosis. As a control among 400 students of approximately the same age in a housekeeping school there were six (1.5 per cent) instances of pulmonary tuberculosis. Absence of routine tuberculin tests and the investigation by x-ray of only part of the two groups limit the value of the investigation, but approximately six times as much pulmonary tuberculosis developed among the nurses as in the control group.

All diabetics should have an x-ray examination. Root (*New Eng J Med*, Jan 4, 1934) finds that active tuberculosis at autopsy in diabetics is two or three times more common than in non-diabetics, that the childhood and adult type of pulmonary tuberculosis in children under fifteen with diabetes is thirteen times as frequent as among Massachusetts school children, that between 151 and 199 years of age pulmonary tuberculosis is sixteen times more common in diabetics than among high school students and that among adult diabetics active pulmonary tuberculosis occurred in 2.8 per cent. Joslin (quoted from Pope *The Commonwealth*, Vol 21, No 2, Apr, May and June, 1934, p 96) finds one patient in every hundred with diabetes in the State and County sanatoria in Massachusetts against one in every three hundred of the general population.

Chief reliance in case-finding must be placed on practicing physicians on whom rests the responsibility of the discovery of the disease and advice regarding the importance of the investigation of contacts. As soon as possible after admission of a patient to a state, county or municipal sanatorium, the effort should be made to investigate all members of the patient's family, with the assistance, if necessary, of the Public Health nurse or the affiliated organizations of the League.

THE BREAKING OF CONTACT

Case finding is a waste of time and money unless coupled with appropriate treatment and elimination of spread of infection. Under existing conditions complete elimination of infection is impossible, but uncontrolled natural infection and reinfection, especially massive infection, must be prevented if dangerous or fatal disease is to be avoided.

COMMUNITY ORGANIZATION

Attention should be paid by the affiliated associations to the membership in the Boards of Directors which may well cover the territory geographically with members selected to enlist the support of the business, industrial and professional interests of the community. In view of the special importance of promoting the interest and cooperation of physicians, it is desirable that from a third to a quarter of the Board be physicians. From time to time it may be desirable to appoint advisory committees to represent certain groups in the community. There should be close and cordial cooperation with the local medical society and when occasion arises the appointment of a medical advisory committee.

BALANCING THE PROGRAM

The summer health camps occupy a prominent place in the activities of the affiliated organizations of the League and absorb a considerable proportion of available funds in the care of some 2000 children during a short period in the summer. In considering the merit of the camps it may be assumed that they do not justify their existence without such accessory advantages as the opportunity afforded for the establishment of friendly relations with family groups, health education of the children and other members of the household, the follow up of the camp children during the remainder of the year and the investigation and breaking of contacts. In attempting to answer the question of the relative value of the camps, the extent to which the affiliated organizations participate also in such other activities as case-finding, health education of adults and school children, industrial health service, cooperation with individual physicians, local medical societies, sanatorium superintendents, the State and local boards of health and health officers should be considered. An estimate should be made of the relative value to the local community of these and other activities for the purpose of properly balancing the program. A comprehensive and continuous health education project is of special importance.

HEALTH EDUCATION

Education for the maintenance and improvement of health is one of the most important aspects of general education and a chief objective of the League. A well organized and comprehensive program may be expected to reduce the hazard from tuberculosis as one of its benefits.

Further effort should be made by the League and its affiliated organizations to promote health instruction of selected individuals and social groups through printed material furnished by the National Tuberculosis Association and the League, the spoken word, graphic displays and other means.

Health education in the schools is the most important means of molding public opinion in matters pertaining to health, and favorably influences the health of children. Turner and Marshall (*Jour. of the Outdoor Life*, Aug. 1934) after ten years of health education studies in Malden find the habits of the children improved, an increased attention to remediable defects, an increased growth rate and the proportion of tuberculosis suspects and cases lower than in other comparable groups.

The educational activities of the League and its affiliated organizations should be especially directed toward securing a larger measure of public support for the investigation of school children and an appreciation of the importance of early diagnosis and the investigation and breaking of contacts.

EXTENSION OF THE ACTIVITIES OF THE LEAGUE
INTO OTHER FIELDS OF WORK

The Executive Committee of the League voted, February 18, 1935 to sponsor a fact finding survey of Diabetes in Boston, the funds for this purpose to be supplied through the George F. Baker Clinic of the New England Deaconess Hospital. By direction of the Executive Committee, the President appointed a Committee, consisting of Drs. Elliott P. Joslin, F. P. Denny, Herbert L. Lombard, Francis X. Mahoney, Alton S. Pope, Charles F. Wilinsky and Mr. Frank Kiernan, to direct the gathering of data on this problem in Boston. Participation of the League in this project through sponsorship and assistance in administrative and office details does not involve the expenditure of seal sale money.

MEDICAL EDUCATION

It is desirable to improve the standards of medical education in Massachusetts and increase the interest and cooperation of physicians in matters pertaining to tuberculosis. At present the Massachusetts Board of Registration in

Medicine examines candidates for licensure, with a premedical education equivalent to that required for graduation from high schools, who have graduated from a chartered medical school with a full course of instruction of thirty-two weeks in each of four years. These are far below the desirable requirements. Thirty-nine states and the District of Columbia require two years of college preliminary to medical training. Four states require one year of college and five states, including Massachusetts, only high school graduation or its equivalent. Such preparation is inadequate for the study of the scientific branches of medicine. Under the present law no attention is paid to the scope or quality of instruction in the medical school curriculum in the acceptance of the candidate for examination. Authority should be given the Board to accept for examination only those candidates who are graduates of approved medical schools. The League and its affiliated organizations have a responsibility to promote an improvement in the quality of medical practice in the Commonwealth.

It is desirable also that attention be given to the scope and quality of education in medical schools in matters pertaining to tuberculosis, the appointment of competent instructors in this field, practical experience of students as clinical clerks in adequately equipped tuberculosis hospitals and sanatoria and the devotion of an amount of time in the curriculum commensurate with the importance of the disease. In estimating the amount of attention to be given to tuberculosis, it should be appreciated that it is one of the leading causes of death at fifteen to forty years of age.

TUBERCULOSIS HOSPITALS AND DISPENSARIES IN CITIES OR TOWNS

Failure to comply with the standards imposed by the State Department of Public Health has deprived two of the nine tuberculosis hospitals

in cities or towns of the subsidy of five dollars per week granted for indigent patients. In certain instances, the small size of these institutions, lack of competent and sufficient personnel, inability to apply the newer methods of treatment by collapse therapy and local political interference in matters pertaining to public health make it desirable to consider a change of policy with respect to these institutions.

With the development of diagnostic service by the extension of the facilities of the State and County sanatoria, there is now no necessity for all cities of 50,000 population and over to maintain tuberculosis dispensaries, as required (Chap 111, Sec 57).

IMPROVEMENT IN PUBLIC HEALTH WORK IN THE COMMONWEALTH

Both the larger and the smaller communities of the Commonwealth should have the advantage to be derived from adequately trained public health officers and the administration of matters pertaining to health without political interference. To improve the quality of service in the smaller communities the appointment of Public Health Officers by union of two or more towns (Amendments, Acts of 1932, Chap 209) should be encouraged.

Though there would seem no necessity for argument in favor of adequate public health work, it has always been difficult to appraise its health protection value. The results obtained during a ten-year period in Rutherford County, Tenn. (Ten Years of Rural Health Work, Rutherford County, Tennessee, 1924-1933, by W. Frank Walker, Dr P H., New York, The Commonwealth Fund, 1935) in consequence of a well organized program in part financed by the Commonwealth Fund of New York furnish important evidence of a reduction in morbidity and mortality of those groups directly reached and indicate that communities should support an adequate health service.

WHAT SHALL WE DO WITH THE PATIENT WITH TRIGEMINAL NEURALGIA?*

BY GILBERT HORRAX, M.D.,† AND JAMES L. POPPEN, M.D.†

MUCH has been learned and much has been written concerning the treatment of the douloureux during the past few years, but its cause still remains a mystery, and its proper treatment must vary widely with the problem by which one is confronted in each individual

Should permanent cure by sensory root division be advocated as a primary procedure in the majority of cases, and if not, how often should alcohol injections be practised before advising the major operation? Should the same treatment be employed for patients in early life as for those beyond sixty? How greatly do cardiac and vascular conditions influence the mortality of sensory root section? Is it right to subject a wage earner with dependent family to a risk, however small, from the permanent op-

*From the Neurosurgical Service of the Lahey Clinic, Boston, Mass.

†Horrax, Gilbert—Head of Neurosurgical Department, Lahey Clinic, Boston. Poppen, James L.—Associate in Neurosurgery, Lahey Clinic, Boston. For records and addresses of authors see This Week's Issue, page 999.

erative cure when he could be carried along many years with no risk and comparatively slight discomfort by injections? These are some, but by no means all of the questions which must be considered and answered by the neurologist or neurosurgeon when relief is sought by those who are suffering from this most painful affliction.

Obviously there is no completely standardized statement that can be given for any of these problems so that the circumstances surrounding each person must be weighed carefully: some of the main points being the patient's own attitude toward his malady, its severity, his individual reaction to pain and the degree of his incapacitation. When all of these factors have been given due judgment one may then, as a rule, arrive at proper conclusions as to treatment.

Before discussing the subject further it must be said, of course, that one should be as sure as possible that the patient has true trigeminal neuralgia and not one or another of the various facial pains or neuralgias which at times closely simulate the *douloureux*. Such pains include particularly those attributed to the sphenopalatine or the geniculate ganglion and those which may be transmitted over the sympathetic system along the blood vessels. These neuralgias, however, although severe, practically always come on more gradually than true *tic*, work up to a climax and then slowly subside. They are often alleviated to some extent by ordinary analgesics and are not brought on by talking, eating or touching the face. Glossopharyngeal neuralgia, though rare, may at times resemble trigeminal since pain comes in sudden paroxysms but its location is in the tonsillar region and posterior part of the tongue. Postherpetic pains are severe, but more or less constant and the history of preceding zoster vesicles is sufficient to establish the diagnosis.

In addition to all these there are the frequent but temporary flashes of pain which are experienced in dental infections or at times after teeth have been filled or removed. Such pains almost always disappear upon clearing up the infection or after the lapse of a short time if they follow fillings or extractions. They are not to be confused with chronic paroxysmal trigeminal neuralgia which is in no way influenced by the removal of teeth. Often however the patient feels that the pain is confined to one or more teeth and may insist upon their extraction, but the wholesale removal of sound teeth is now fortunately far less prevalent than it was ten or fifteen years ago.

In the foregoing paragraphs there have been incorporated many of the features upon which the diagnosis of the *douloureux* is made. A typical "spasm" or paroxysm when seen is unmistakable but a large number of patients upon entering the office exclaim: "Well, doctor my pain has stopped, just like the man with a

toothache finds that it disappears when going to the dentist." It is quite remarkable how many people with neuralgia employ this identical simile. For this reason one does not always see a patient having an attack of pain, but the history of recurring attacks of excruciating "knife-like" jabs, lasting from a few seconds to possibly a minute or two is usually sufficient. If this story is supplemented by the statement that the pain is brought on by such acts as talking, eating, swallowing or in fact any movement of the face, or by touching some area in the face, often called the "trigger zone", there is no need to question the diagnosis of trigeminal neuralgia. There are however some patients whose history corresponds more or less closely to that which has just been described, but certain important features may be lacking. Such cases one must put in the doubtful group when deciding what form of treatment should be employed.

Since in all branches of medicine and surgery there are divergent opinions concerning the best form of therapy in a given disease, so in the treatment of the *douloureux* there are those who with excellent reason prefer methods which to others seem either too mild or too radical as the case may be. That there is wide opportunity for conflicting ideas is evident from the fact that patients having this affliction consult, in addition to their family physicians, a variety of specialists, including oral surgeons, neurologists and neurosurgeons. The early and milder cases are likely to be seen less frequently by neurosurgeons than by the other groups, but this is not always the case, hence even neurosurgeons may be called upon to advise and employ conservative as well as radical measures. Among neurosurgeons there are those who feel that alcohol injections are seldom necessary because the relief which they give is practically always temporary and also because the injections themselves are somewhat painful even when novocain is used. There can of course, be no argument for a prolonged painful and perhaps unsatisfactory alcohol injection against a simple and painless sensory root avulsion but we believe that there is a definite place for both procedures when the injections can be performed in the vast majority of cases in a simple, easy and relatively painless manner.

Our present views are based upon the treatment employed in 500 cases of trigeminal neuralgia during the past eleven years. A large number of the earlier patients were referred to the senior author while on the surgical service of Dr. Harvey Cushing at the Peter Bent Brigham Hospital and it is with grateful appreciation of his kindness in so doing that this acknowledgment is made. In our series as in every series, there have been patients with mild and with severe neuralgias, those in whom the neuralgia began and remained in a single division of the

and then form my opinion. In this case, however, even while trying to keep the same attitude, I found it difficult not to have a half-formed opinion as to the character of the pathological conditions I might meet, particularly in the abdominal cavity. This was because of the report of his severe diarrhea, vomiting and question of poisoning by the candy. The examination of the abdomen was made first and the view which was presented was far different from what I rather expected to see.

Apparently the entire abdominal cavity, as well as the pelvic cavity was perfectly normal. Proceeding from below, the rectum and bladder were normal. The colon, appendix and intestines were negative throughout, the mucosa was the same. The stomach contained about an ounce of greenish, bile tinged fluid and there was a moderate amount of congestion of the mucosa, but otherwise negative. The kidneys also were negative. The spleen was rather large (estimated, not weighed). On section, it was somewhat soft and mushy and plum colored. The pancreas, adrenals, ureters and gall bladder were negative.

The liver weighed 1700 grams, surface smooth, showed some dark and lighter mottled areas. An infarct was seen in the left lobe (lower lobe) and in the center of it a frank circumscribed abscess, three-quarters of an inch in diameter.

On section, the liver was grayish in color, many shot sized grayish areas in right lobe. The microscopical examination of the liver I am sorry to say was not made, as the specimens taken for that purpose and left in the care of the hospital, were lost.

In the diaphragm nothing unusual was noted. The right pleural cavity was negative, no adhesions. The left showed no adhesions but contained about an ounce or two of blood tinged fluid in which fibrinous flecks were seen. The trachea and bronchi contained a considerable amount of white and bloody frothy fluid. Lungs. Both were full sized and rather voluminous. The right lung was markedly congested, mostly in the upper lobe. The lower lobe presented two small nodular areas, one three quarters of an inch in diameter, the other a half inch. Both showed a small amount of softening. They were surrounded by injected rather solid areas. These appeared as infarcts and bronchopneumonia.

The left lung showed marked congestion of the upper lobe, the lower lobe being more solid and less edematous. In the lower part of the lower lobe, there was on the surface of the lung an area covered with a fibropurulent exudate. In the center of this and just below the surface was an indurated, slightly elevated area the size of a walnut. Section of this showed abscess formation with a solid, congested area about the same.

The pericardium contained one and a half to two ounces of fluid with an occasional fibrinous fleck. There was also seen a moderate amount of fibrinous exudate on the lower part of the left ventricular wall. The heart was of moderate size (estimated), no measurements were made at the time except those of the mitral valve. The myocardium was of good consistence. The edges of the mitral valve were thickened and granular, and the valve somewhat contracted, measuring 8.5 cm. Adherent to the valve and extending up into the left auricle was a thrombotic mass. Nothing unusual was noted about the other valves. The coronaries, aorta, pulmonary artery and venae cavae were negative.

The brain showed a slight amount of edema, with vessels well filled. Otherwise nothing unusual was seen.

The pathological findings included acute fibrinous pericarditis, abscess of lungs, bronchopneumonia, acute pleuritis, chronic and subacute endocarditis of the mitral valve and a circumscribed abscess of liver.

Note. Later I was told, at the hospital, of the diagnosis made there of "Mitral-stenosis and regurgitation". Also some time after the autopsy and the vague history referred to, it was revealed that in 1923 the boy had rheumatism of the feet and legs. I then learned that his tonsils and adenoids had been removed, the date of which I have no knowledge.

The chocolate covered rolls were examined by our local chemist, Mr. George Bolling, and the laxative was found to be phenolphthalein and those submitted to him showed 3.38 grains to a section.

The manufacturer was communicated with and he stated that aside from some sweet inert material, phenolphthalein was the ingredient used as the laxative, the white being used as they had been advised that it was better than the yellow. He also stated that the amount in each section or cut was 3 grains.

The parents came to me after some considerable time had passed to ask me about the case.

I found out that the lad was insured and received the impression that there was double indemnity if death occurred from accident. The case was gone over most painstakingly and I tried to explain in terms that could be understood, but they could not (or apparently would not) be convinced that the pathological conditions found postmortem were responsible for his death, but insisted that the candy he ate was the cause of his death. No pathological changes were found that could be attributed to the laxative compound he was said to have eaten.

A FEW NOTES ON PHENOLPHTHALEIN

Harc.,—1916 "No effect on general system, even when given for long periods of time."

U S Dispensatory—Sixty grains given to a dog intravenously, no change in respiration or circulation.

Child three years old took twenty-seven grains with violent purging only.

Only slightly absorbed in the intestines. Acts by stimulating the secretion and peristalsis.

Case of my own—Family reported that their small child (age ?), ate a whole box of "Rexall Orderlies". The drug firm said they contained only phenolphthalein, but the amount in each tablet they did not know. No ill effects were reported. I do not know how many tablets the box contained but the smallest box they sell contains twenty-four tablets.

Since finding the above data, my attention has been called to an article "Phenolphthalein Intoxication", in the *Journal of the American Medical Association*, 101, No. 10, 761-764, 1933,

by Ben A. Newman, M.D., Detroit, Mich. In this article he reports one fatal case. A ten year old boy ate a box of "Elixir" tablets. His temperature rose to 106°. Huge wheals appeared on the abdomen, multiple petechiae on the body, with subcutaneous hemorrhages of the feet. Hemiplegia followed the child became delirious and died nine days after taking the tablets. An autopsy revealed hemorrhages of various sizes throughout the length of the intestine, minute hemorrhages of the kidneys, heart, liver and brain, with marked congestion of meninges.

In the same article Wood experimenting on dogs gave doses which in human beings equalled

60 to 100 grains, without harm. Abel and Rowntree gave animals enormous doses intravenously without harmful effects. Hydrick reported albuminuria following from one to two grain doses in twenty consecutive cases. Bastedo has not found a single case of albumin following phenolphthalein in frequent urinary examinations during an extensive, clinical use of the drug.

Dr Newman reports eighteen types of atypical cutaneous manifestations and four other types other than cutaneous,—lipoid nephrosis, toxic nephritis with permanent hematuria, visceral hemorrhages and ulcerative colitis.

A STUDY OF HEART DISEASE AMONG VETERANS*

III Hereditary and Familial Factors in the Causation of Cardiovascular Disease

BY PHILIP B. MATZ, M.D.†

THE opinion seems to prevail that cardiovascular disease is in part due to hereditary and familial factors. Allen² states that inheritance is of more importance than all other factors in the etiology of arteriosclerosis. On the one hand we see an individual whose forebears were long lived stand up under the most severe strain of mental activities, hard physical labor and various successes and whose arteries in old age are still in excellent condition. On the other hand we find a most advanced stage of the disease of the arteries in a child with diabetes. In certain comparatively young individuals advanced arteriosclerosis may be noted without any known cause or contributing factors except a poor eugenic background. Mosen³ maintains that there is a transmitted predisposition to apoplexy. Weitz has made an exhaustive study of the familial and hereditary influences in connection with the onset of hypertension, and he comes to the conclusion that these factors are very important and affect both men and women.

Deutsch, Kauf and Warfield⁴ in a study of the heart in athletes found that there was a factor aside from disease, exertion, etc., which played an important part in the etiology of heart enlargement. These observers in a study of their cases frequently noted enlarged hearts for which neither excessive training nor previously stated disease factors could be held responsible. An explanation for these deviations offered itself in the fact that the cases represented numerous pairs of brothers and sisters thus indicating a familial contributory factor in the inception of the heart disease.

In the discussion of the part played by heredity and familial factors in the etiology of arterial hypertension and arteriosclerosis one finds strong evidence of a close relationship, and an almost unanimity of opinion on the subject

Osler once stated that arteriosclerosis depends in the first place upon the quality of arterial tissue which the individual inherits and secondly upon the amount of wear and tear to which the arteries are subjected. It was his opinion that the former played the more important rôle as was shown by the fact that arteriosclerosis frequently sets in early in life in individuals in whom none of the recognized etiological factors could be found. Osler refers to entire families who showed the tendency to early arteriosclerosis. Wilhelm Weitz⁵ has made the most painstaking study on the relation of heredity to essential hypertension. The study was made in and around Tübingen, Germany. The subjects were mainly of the uncultured and sedentary peasant population of that locality. The conclusion reached by this observer was that there is an hereditary predisposition to essential hypertension, and that this predisposition behaves in the genetic sense as a Mendelian dominant. Weitz maintains that in a small number of instances the dominant inheritance of hypertension cannot be shown, but such cases are in the minority.

In a study of the hereditary and familial influences upon the etiology of cardiovascular disease in the group of patients under discussion it was found that the information on the subject was available in 454 cases. Detailed information on the hereditary and familial influences in the inception of cardiovascular disease may be seen by referring to the table.

A study of this table shows that eighty-three or 18.2 per cent of the group of 454 cases gave an hereditary or familial history of cardiovascular disease. It will be noted that fifty-seven of the eighty-three cases or 68.7 per cent gave an hereditary history, fifteen or 18.1 per cent gave a familial history, and eleven or 13.2 per cent gave a combined hereditary and familial history.

A study of the hereditary and familial influence on the various etiological types of heart disease reveals the fact that they were important

*From the Research Subdivision, Medical and Hospital Service, Veterans Administration.

†Matz, Philip B.—Chief Research Subdivision, Medical and Hospital Service, Veterans Administration, Washington, D. C. Record and address of author see "This Week's Issue," page 95.

factors in the rheumatic (27.7 per cent), and arteriosclerotic (22.9 per cent) types of heart disease, as well as in heart disease the sequel of infectious diseases (15.7 per cent). Further study of this table shows that a parental history of cardiovascular disease was the most frequent finding in those cases with an hereditary history of heart disease, while the presence of cardiovascular disease in a brother was the most fre-

hold that heredity plays a very important rôle as an etiological factor. An explanation is offered that this influence is but one of a number of factors, and that constitutional susceptibility and various etiological factors played a more dominant rôle in the inception of heart disease in this group of patients than did heredity and the familial influences.

2 In a study of the part played by heredity

TABLE SHOWING HEREDITARY AND FAMILIAL HISTORY OF CARDIOVASCULAR DISEASE

Hereditary History	Total	Etiological Type of Heart Disease									
		Rheumatic	Syphilitic	Heart disease sequel of infectious diseases	Cardiac neurosis	Arteriosclerotic	Hypertensive	Congenital developmental defect	Unknown etiology	Potential heart disease	Possible heart disease
Mother	25	5	5	5		5	1	1	2	1	
Father	23	7		3	1	7	1		2	1	1
Grandmother	2			1	1						
Mother and father	3		1			2					
Two uncles and father	1	1									
Grandmother and father	1	1									
Grandfather and father	1	1									
Grandmother and two uncles	1	1									
Total	68.7%	57	16	9	2	14	2	1	4	2	1
Familial History											
Sister	4	1				1	1		1		
Brother	11	3	2	2		2				2	
Total	18.1%	15	4	2		3	1		1	2	
Hereditary and Familial History											
Mother and sister	1									1	
Mother and brother	1								1		
Mother, sister and brother	1									1	
Father, mother, sister and brother	1					1					
Grandmother, mother and sister	1	1									
Grandfather, mother and sister	1										
Father and sister	1	1									
Father and brother	3			2		1					
Father, sister and three brothers	1	1									
Total	13.2%	11	3	2	1	2			1	2	
Grand total		83	23	8	13	19	3	1	6	6	1
Per Cent			27.7	9.7	15.7	3.6	22.9	3.6	1.2	7.2	7.2

quent finding in those cases with a familial history.

The question arises why but 18.2 per cent of the group gave an hereditary or familial history of heart disease. It is a well known fact that the latter influence constitutes but one of a number of factors which conduce to heart disease. There is in addition a constitutional susceptibility, and various etiological factors such as rheumatic fever, the infectious diseases, syphilis, etc., which play a more direct rôle in the causation of heart disease.

SUMMARY AND CONCLUSIONS

1 In the consideration of the part played by heredity and familial influences in the causation of cardiovascular heart disease, it was found that but 18.2 per cent of a group of 454 patients gave a positive history. This is not in full

accord with the findings of other observers, and familial factors in the causation of the etiological types of heart disease, it was found that these factors played a prominent rôle in the causation of heart disability in the rheumatic and arteriosclerotic types of heart disease as well as in heart disease the sequel of infectious diseases.

3 A parental history of cardiovascular disease was the most frequent finding in those cases with an hereditary history of heart disease. The presence of cardiovascular disease in a brother was the most frequent finding in those cases with a familial history of heart disease.

REFERENCES

- 1 Allen Arthur W. Vascular disease. Nelson's Loose-Leaf Living Medicine 4 531 1924.
- 2 Mosenthal Herman O. Blood pressure. Normal and abnormal. Nelson's Loose-Leaf Living Medicine 4 643L 1924.
- 3 Deutsch Felix, and Kauf Emil. Heart and Athletics. Translated by Louis M. Warfield. St. Louis The C. V. Mosby Company 1927.
- 4 Weitz Wilhelm. Etiology of hypertension. Ztschr. f. klin.

The Massachusetts Medical Society



PROGRAM OF THE ONE HUNDRED AND FIFTY FOURTH ANNIVERSARY

THE Exercises of the Anniversary will be held
on Monday, Tuesday and Wednesday June
3, 4 and 5 in the Hotel Statler, Boston

1934—1935

OFFICERS OF THE SOCIETY

William H Robey, *President*—202 Common-
wealth Avenue, Boston
Philemon E Truesdale, *Vice-President*—151
Rock Street, Fall River
Alexander S Begg, *Acting Secretary*—45 Hast-
ings Street, West Roxbury
Charles S Butler, *Treasurer*—257 Newbury
Street, Boston

William M Shedden, 270 Commonwealth Ave-
nue, Boston—*Chairman, Committee of Ar-
rangements*

STANDING COMMITTEES

Of Arrangements

W M Shedden, W R Morrison Horatio
Rogers, W S Burrage, R P Stetson

On Publications

R I Lee, Homer Gage, R B Osgood, R M
Smith, F H Lahey

On Membership and Finance

D N Blakely, G C Caner, J E Fish, H F
Newton, H Q Gallupe

On Ethics and Discipline

David Cheever, W D Ruston, S F McKeen,
A C Smith, R L DeNormandie

On Medical Education and Medical Diplomas

Reginald Fitz, C H Lawrence C A Spar-
row, E S Calderwood, A S Begg

On State and National Legislation

W H Robey, A S Begg, F E Jones A W
Marsh, Shields Warren

On Public Health

Dwight O'Hara, E F Cody, F G Curtis,
Gerald Hoeffel, G D Henderson.

On Malpractice Defense

F G Balch, E D Gardner, F B Sweet,
R P Watkins A W Allen.

On Permanent Home

R B Greenough, S B Woodward, C G Mix-
ter, J M Birnie, C S Butler

DELEGATES AND ALTERNATES TO THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSO- CIATION

Delegates

J M Birnie Springfield, C E Mongan, Som-
erville, J F Burnham, Lawrence R H Miller,
Boston, E F Cody New Bedford, Reginald
Fitz, Boston.

Alternates

W C Leary Springfield L S McKittrick,
Boston, E L Hunt, Worcester Cadis Phipps,
Brookline, P E Truesdale Fall River, G P
Reynolds Boston

GENERAL INFORMATION

Members of the medical profession are cor-
dially invited to attend the exercises of the an-
niversary

A Bureau of Information will be maintained
at the Registration Desk in the Ball Room of the
Hotel Statler near the scientific and commercial
exhibits. There will be a private telephone at
the bureau for the reception of calls for attend-
ing physicians. Physicians expecting to receive
calls should leave proper information with the
attendant.

Fellows are requested to register as soon as
they arrive and to get their tickets for the An-
nual Dinner and for the Wednesday luncheon.

The charge for the Annual Dinner will be \$2 00 to those who are *not in arrears* and the Wednesday luncheon will be *without charge to those whose dues have been paid*

The *Scientific Exhibits* are located as follows
Parlors A and B (Mezzanine near Georgian Room) Arthritis

Ball Room Floor Anesthesia, Arteriosclerosis, Burn Treatment, Dermatitis, Fractures, Gastric Surgery, GastroscoPy, Sex Hormonology

Ball Room Stage Biological Products, Cancer of Rectum and Colon, Environmental Control, Lobar Pneumonia, Lung Tumors, Pulmonary Tuberculosis, Thyroid Diseases

Ball Room Balcony Diseases of Lung, Boston Medical Library, Industrial Medicine, Metastatic Cancer, Pathogenic Fungi, Plastic Surgery

(See page 985' for full list of Scientific Exhibits)

Motion pictures of medical, surgical and general interest (listed below) will be shown on Monday morning, from 9 00-12 00, in the Georgian Room

The *Commercial Exhibits* will be in the Ball Room A list of the exhibitors will be found on page 987

MONDAY MORNING, JUNE 3

9 00 o'clock

Hotel Statler, Georgian Room

MOTION PICTURES

- 1 Mechanism of Heart Beat and Electrocardiography
- 2 Pernicious Anaemia
- 3 Emergency Care for Safe Transportation in Fractures of the Long Bone
- 4 Acute Appendicitis
- 5 Development of Fertilized Rabbit's Ovum
- 6 Growth of Human Tumors in Vitro
- 7 Intracranial Hemorrhage
- 8 The Boston Lying-In Hospital Technique

MONDAY MORNING, JUNE 3

9 15 o'clock

Hotel Statler, Ball Room Assembly

SECTION OF DERMATOLOGY AND SYPHILOLOGY

Officers of the Section

Dr Charles J White, Boston, *Chairman*

Dr William P Boardman, Boston, *Secretary*

1 The Chairman's Address

The History of Dermatology in Boston
By Dr Charles J White, Boston Ed-

ward Wigglesworth Professor of Dermatology, Emeritus, Harvard Medical School

2 Oral Manifestations of Bismuth

By Dr Francis P McCarthy, Boston Assistant Visiting Physician for Diseases of the Skin, Boston City Hospital, Professor of Oral Medicine, Tufts College Dental School, and Dr Smith O Dexter, Jr, Boston City Hospital

Discussion by Dr Austin W Cheever, Boston, and Dr William P Boardman, Boston

3 The Treatment of Psoriasis with an Organic Sulphur Compound

By Dr Francis M Thurmon, Boston Physician-in-Chief, Department of Dermatology and Syphilology, Boston Dispensary, Assistant Professor of Dermatology and Syphilis, Tufts College Medical School

Discussion by Dr William J Macdonald, Boston, and Dr Bernard Appel, Boston

4 The Diagnosis of Industrial and Non-Industrial Skin Diseases

By Dr John G Downing, Boston. Assistant Visiting Physician for Diseases of the Skin, Boston City Hospital, Assistant Professor of Dermatology and Syphilis, Tufts College Medical School

Discussion by Dr C Guy Lane, Boston, and Dr J Harper Blaisdell, Boston

5 Fungus Diseases of the Skin

By Dr Arthur M Greenwood, Boston Dermatologist, Massachusetts General Hospital and Huntington Memorial Hospital, Instructor in Dermatology, Harvard Medical School

Discussion by Dr Jacob H Swartz, Boston and Dr Ethel M Greenwood, Boston

MONDAY AFTERNOON, JUNE 3

2 00 o'clock

Hotel Statler, Georgian Room

SECTION OF OBSTETRICS AND GYNECOLOGY

Officers of the Section

Dr Thomas Almy, Fall River, *Chairman*

Dr Charles J Kickham, Brookline, *Secretary*

1 Maternal Mortality A Demand for Farness

By Dr Charles E Mongan, Somerville Surgeon, Somerville Hospital Visiting Physician, Holy Ghost Hospital for Incurables

Discussion by Dr Foster S Kellogg, Boston, and Dr Robert L DeNorman die, Boston

2 *Diagnosis and Treatment of Lesions of the Cervix Uteri, illustrated with lantern slides*

By Dr Carl Henry Davis, Milwaukee, Wisconsin Clinical Professor and Director, Department of Obstetrics and Gynecology, Marquette University School of Medicine

Discussion by Dr Henry T Hutchins, Boston, and Dr George van S Smith Brookline

3 *Presacral Neurectomy*

By Dr Frank A. Pemberton, Boston. Professor of Gynecology, Harvard Medical School, and Surgeon at the Free Hospital for Women in Brookline.

Discussion by Dr James O White Boston, and Dr Louis E Phaneuf Boston

MONDAY AFTERNOON, JUNE 3

2 30 o'clock

Hotel Statler, Ball Room Assembly

SECTION OF RADIOLOGY AND PHYSIOTHERAPY

Officers of the Section

Dr Franklin P Lowry, Newton, *Chairman*

Dr Philip H Cook, Worcester, *Secretary*

1 *Infantile Phases of Congenital Dislocated Hips*

By Dr Edward C Vogt Boston Roentgenologist, Infants' and Children's Hospital, Boston.

Discussion by Dr William T Green Boston

2. *The Physics of the High Frequency Currents as Used in Medicine—Diatherm Radio therm and Electric Knife*

By Prof E Leon Chaffee, Cambridge Professor of Physics, Harvard University (By Invitation)

3 *Fever and Short Wave Radiations*

By Dr William Bierman New York City Instructor, Department of Surgery Columbia University Lecturer in Therapeutics, New York University Medical School. Attending Physician in Physical Therapy, Beth Israel Hospital, New York City (By Invitation.)

4 *Diagnostic Possibilities in Soft Tissue Radiography*

By Dr John R. Carty, New York City Roentgenologist, New York Hospital (By Invitation.)

Discussion by Dr Aubrey O Hampton, Boston.

MONDAY EVENING, JUNE 3

8.15 o'clock

Hotel Statler, Georgian Room

THE SHATTUCK LECTURE

By William E Gallie, M.D., F.A.C.S., F.R.C.S (Eng.), University of Toronto Faculty of Medicine, 1903 Professor of Surgery, University of Toronto Faculty of Medicine

Subject *Sprains and Dislocations*

MONDAY EVENING, JUNE 3

After the Shattuck Lecture

"*The Land of the Aztecs*" A fascinating motion picture portrayal of Mexico

By Dr Charles H Tozier, of Winchester, Mass.

This lecture on the birthplace of American history will be fully illustrated by a most remarkable collection of color slides. They were photographed by special permission from the Mexican Government and with the help of Ambassador Daniels in Mexico City

Many of the shrines and treasures of that country, both ancient and modern, have never been photographed before and none of them have ever been taken in color. The pictures will portray the times of Montezuma, the last Aztec ruler of Mexico and then on through the Spanish Conquest down to the present modern Mexico. The Monte Alban jewels, a recent find, are a very important relic of an ancient race in America, and prove that Mexico is truly the Egypt of the so-called "New World." Some of the gods, altars pyramids and other relics of this extinct race will be shown on the screen.

Modern Mexico will be illustrated by some of the most outstanding sights to be seen in that country to-day. The Rivera murals showing his conception of both ancient and modern life in Mexico, will be shown in color. These murals are some of the most interesting in the western world.

To supplement these color slides, Dr Tozier will show a motion picture of travel in Mexico, the Mexican Charros gathering for the bullfight, and the bullfight which is as much a part of Mexican life as the Harvard Yale classic is to New England.

After seeing these pictures you will realize that the history of ancient America is fully as interesting as that of any other country on the globe.

It is understood that the ladies who are attending the Annual Meeting are most welcome

LIGHT REFRESHMENTS

TUESDAY MORNING, JUNE 4

9 15 o'clock

Hotel Statler Ball Room Assembly

SECTION OF SURGERY

Officers of the Section

Dr Ralph W French, Fall River, *Chairman*
 Dr E Parker Hayden, Boston, *Secretary*

- 1 *Two Hundred Recent Acute Perforated Ulcers of the Stomach and Duodenum from the Boston City Hospital*

By Dr William Reid Morrison, Boston Associate Professor of Surgery, Boston University School of Medicine, Visiting Surgeon, Boston City Hospital

- 2 *The Treatment of Recurrent Varicose Ulcer*
 By Dr Edward A Edwards, Brookline Assistant in Surgery and Member of the Circulatory Clinic, Boston City Hospital, Instructor in Surgery, Tufts College Medical School

- 3 *X-Ray and Autopsy Study of Anatomical Changes of the Upper Urinary Tract in Patients with Obstructing Prostates*

By Dr George C Prather, Boston Urologist, Newton Hospital, Assistant Urologist, Boston Lying-In Hospital, and Dr M L Brodny, Boston Assistant Urologist, Out-Patient Department, Beth Israel Hospital

- 4 *The Surgical Problems Involved in the Total Excision of the Bladder for Cancer*

By Dr William C Quinby, Boston Clinical Professor of Genito-Urinary Surgery, Harvard Medical School, Urological Surgeon, Peter Bent Brigham Hospital

- 5 *Methods and Results in the Surgical Treatment of Diseases of the Biliary Passages*

By Dr David Cheever, Boston Associate Professor of Surgery, Harvard Medical School, Surgeon, Peter Bent Brigham Hospital

- 6 *Hyperparathyroidism*

By Dr Fuller Albright, Boston Instructor in Medicine, Harvard Medical School, Assistant Physician, Massachusetts General Hospital

- 7 *The Surgery of Sub-Total Parathyroidectomy*

By Dr Oliver Cope, Boston Assistant in Surgery, Massachusetts General Hospital, Instructor in Surgery, Harvard Medical School

- 8 *The Reduction of the Mortality in Hyperthyroidism*

By Dr Frank Lahey, Boston Director of Surgery, The Lahey Clinic, Surgeon-In-Chief, New England Baptist Hospital

TUESDAY MORNING, JUNE 4

10 00 o'clock

MEDICAL CLINIC

Massachusetts General Hospital

Lower Out-Patient Department Amphitheatre

- 10 00—Dr Walter Bauer Medical Clinic on Bone and Joint Disease
 10 20—Dr C S Kubik Cerebral Infarction Clinical and Pathological Aspects
 10 40—Dr H L Higgins Pediatric Clinic on Streptococcus Infections
 11 00—Dr R J Clark Experiences with Total Thyroidectomy for Heart Disease at the Massachusetts General Hospital
 11 15—Dr E L Oliver Use of Colloidal Manganese in Furunculosis
 11 30—Dr F Fremont-Smith Influence of Emotion on Precipitating Symptoms
 11 50—Dr J H Means Medical Clinic

TUESDAY MORNING, JUNE 4

11 30 o'clock

Hotel Statler, Georgian Room

ANNUAL MEETING OF THE SUPERVISING CENSORS

TUESDAY NOON

Hotel Statler, Georgian Room

ANNUAL MEETING OF THE COUNCIL

Followed by the Cotting Luncheon to Councilors (Should the Council meeting be prolonged, the Councilors will reconvene for an adjourned meeting)

(Notices of the meeting, with the order of business, will be mailed to Councilors on May 28)

TUESDAY AFTERNOON, JUNE 4

2 30 o'clock

Hotel Statler, Ball Room Assembly

SECTION OF MEDICINE

Officers of the Section

Dr Francis M Rackemann, Boston, *Chairman*
 Dr Richard P Stetson, Boston, *Secretary*

Symposium on the Etiology of Disease

- 1 *The Importance of Physical Examination in Detecting Early Disease*

By Dr Joseph H Pratt, Boston Professor of Clinical Medicine, Tufts College Medical School, Physician-in-Chief, New England Medical Center

Discussion by Dr Reginald Fitz, Boston, and Dr F Van Nuys, Weston

2. *The Etiology of Chronic Arthritis*
By Dr Chester S Keefer, Boston Assistant Professor of Medicine Harvard Medical School.
Discussion by Dr Walter Bauer, Boston and Dr Herbert L. Lombard, Boston
3. *Some Factors in the Etiology of Bright's Disease*
By Dr John P Peters, New Haven, Conn. John Slade Ely Professor of Medicine, Yale University School of Medicine (By Invitation)
Discussion by Dr James P O'Hare, Boston, and Dr Soma Weiss, Boston
4. *The Etiology of Degenerative Vascular Disease*
By Dr Howard B Sprague, Boston. Assistant Physician, Massachusetts General Hospital.
Discussion by Dr Henry A. Christian Boston, and Dr Robert S Palmer Boston
5. *Drug or Protein Allergy as a Cause of Agranulocytosis and Certain Types of Purpura*
By Dr Francis T Hunter, Boston Assistant Physician Massachusetts General Hospital
Discussion by Dr Henry N Pratt, Boston, and Dr Henry Jackson Jr Boston

TUESDAY EVENING, JUNE 4

7 00 o'clock

Hotel Statler, Georgian Room

THE ANNUAL DINNER

Fellows wishing to sit together at the dinner please send their names to Dr William M. Shedden, *Chairman of the Committee of Arrangements*, 8 Fenway, Boston, at the earliest date possible and proper reservations will be made. Tickets for the dinner should be obtained at the Registration Desk in the Ball Room

WEDNESDAY MORNING, JUNE 5

9 00 o'clock

Hotel Statler, Georgian Room

SECTION OF PEDIATRICS

Officers of the Section

- Dr Joseph Garland, Brookline and Boston, *Chairman*
Dr James M. Baty, Belmont and Boston, *Secretary*

Symposium on the Control of Certain Communicable Diseases

1. *Measles*

By Dr R Cannon Eley, Chestnut Hill and Boston Instructor in the Department of Pediatrics and Communicable Diseases, Harvard Medical School, Associate Visiting Physician, Children's Hospital, Boston

2. *Pertussis*

By Dr Francis C McDonald Assistant Physician in Chief, Boston Floating Hospital, Instructor, Department of Pediatrics, Tufts College Medical School.

3. *Scarlet Fever*

By Dr Gaylord W Anderson, Director, Division of Communicable Diseases, Massachusetts Department of Public Health

4. *Diphtheria*

By Dr Elliott S Robinson Director of Antitoxin and Vaccine Laboratory, Massachusetts Department of Public Health

5. *Summary*

By Dr Richard M. Smith Boston Assistant Professor of Child Hygiene, Harvard School of Public Health, Associate Visiting Physician, Children's Hospital, Visiting Physician, Infants' Hospital

WEDNESDAY MORNING, JUNE 5

9 00 o'clock

Hotel Statler, Ball Room Assembly

SECTION OF TUBERCULOSIS

Officers of the Section

- Dr Donald S King Boston *Chairman*.
Dr Olin S Pettingill, Middleton, *Secretary*
Symposium on Differential Diagnosis Between Pulmonary Tuberculosis and

1. *Carcinoma of the Lung*

By Dr Merrill Clary Sosman, Boston Roentgenologist to the Peter Bent Brigham Hospital

2. *Abscess and Bronchiectasis*

By Dr G Arnold Rice, Holden Ear, Nose, and Throat Surgeon and Bronchoscopist to the Holden District Hospital, Consulting Laryngologist and Bronchoscopist to the Rutland State Sanatorium

3. *Silicosis*

By Dr David Zacks, Boston Chief of Clinic, Division of Tuberculosis, State Department of Health.

4. *Non Tuberculous Fibrosis*

By Dr Aubrey O Hampton Boston Assistant Roentgenologist Massachusetts General Hospital

5 *Mycotic Infections of the Lungs*
By Dr Henry J Bakst, Boston Junior
Visiting Physician, Boston City Hos-
pital.

6 *Circulatory Changes*
By Dr Paul D White, Boston Physi-
cian, Massachusetts General Hospital,
Assistant Professor of Medicine, Har-
vard Medical School

Summary of Entire Symposium

By Dr Frederick T Lord, Boston Mem-
ber of the Board of Consultation, Mass-
achusetts General Hospital, Clinical
Professor of Medicine, Emeritus, Har-
vard Medical School
(Papers limited to ten minutes each)

WEDNESDAY MORNING, JUNE 5

10 00 o'clock

SURGICAL DRY CLINIC

Massachusetts General Hospital

Surgical Amphitheatre

- 10 00—Dr Beth Vincent Total Gastrectomy
10 10—Dr C C Simmons Tumor Clinic Dem-
onstration
10 20—Dr J D Barney Experiences with
Carcinoma of the Bladder
10 30—Dr W J Mixer Rupture of the Inter-
vertebral Disc
10 40—Dr R H Miller Osteomyelitis
10 50—Dr A W Allen Surgery of the Com-
mon Duct
11 00—Dr H C Marble Fracture Demonstra-
tion
11 10—Dr L S McKittrick Ulcerative Colitis
11 20—Dr J V Meigs Fate of the Retained
Ovary after Hysterectomy
11 30—Dr R H Smithwick Surgical Treat-
ment of Malignant Hypertension
11 40—Dr Horatio Rogers Pilonidal Sinus
11 50—Dr H H Faxon Evaluation of Pavaex
in the Treatment of Peripheral Vascular
Disease
12 00—Dr Olver Cope Results of Operation in
Hyperparathyroidism
12 10—Dr P L Norton Injection Treatment of
Chronic Bursitis
Operations by Members of the Surgical Staff—
8 00 to 10 00 A.M.

WEDNESDAY NOON, JUNE 5

Hotel Statler, Georgian Room

ANNUAL MEETING OF THE MASSACHUSETTS
MEDICAL SOCIETY

BUSINESS OF THE ANNUAL MEETING

Address by the President

WEDNESDAY AFTERNOON, JUNE 5

1 00 o'clock

Hotel Statler, Georgian Room

THE ANNUAL DISCOURSE

By Dr Brace W Paddock, Pittsfield

Subject *Education in Medicine*

At the close of the Annual Discourse, lunch-
eon will be served in the Georgian Room to those
who have obtained tickets

WEDNESDAY AFTERNOON, JUNE 5

3 30 o'clock

Belmont Springs Country Club

GOLF TOURNAMENT

An interesting feature of the Annual Meeting
this year is a *Kickers' Tournament*, open to
members of the Massachusetts Medical Society
and their guests. A most cordial invitation to
participate is extended by the Committee in
Charge. A number of choice and useful prizes
have been donated. Greens Fee, One Dollar.

Those wishing to play golf, also those wishing
to make dinner reservations at the Club, please
notify Dr Gordon M Morrison, 520 Common-
wealth Avenue, Boston, by May 28.

SOCIAL CALENDAR FOR THE LADIES

MONDAY, JUNE 3

Registration, Hotel Statler Mezzanine

- 1 Tea—from 4-6, at the home of Mrs Randall
Clifford, "Green Hill", 215 Warren
Street, Brookline. Busses leave Statler 4
P.M.

Shattuck Lecture, 8 15 P.M. Dr William
E Sallie, Hotel Statler. Followed by
"The Land of the Aztecs," a Fascinating
Motion Picture Portrayal of Mexico. Dr
Charles H Tozier.

TUESDAY, JUNE 4

Registration

- 10-12—Visit to Social Service, Occupational
Therapy and other departments of Mass-
achusetts General Hospital.
2 Tea—The Isabella Stewart Gardner Museum,
Fenway Court.
Mr Morris Carter, Director, has graciously
arranged for a personally conducted
tour from 3-4 P.M. There will be a recep-
tion at 4 o'clock and tea will be served
at 4 30.

As the number of tickets is limited to 300,
it is urgently requested that a prompt
response be sent in order that necessary
preliminary arrangements may be made.
Tickets will be held to be called for at
Information Desk, Hotel Statler.
Busses will leave the Statler at 2 45 and
3 45.

- 3 Buffet Supper with entertainment—6 30 P.M.
Junior League, Zero Marlborough Street
There will be a charge of one dollar per person. After supper the ladies are invited to hear the speakers at the Massachusetts Medical Society annual dinner

WEDNESDAY, JUNE 5

- 4 Trip to Concord
Busses will leave the Statler at 11 A.M.
12 30—Lunch for the ladies at Concord Country Club, as guests of the Massachusetts Medical Society, in honor of the wives of the Presidents of the District Medical Societies
Visit Mrs. Russell Robb's garden
Return at 3 P.M.

It is important that Boston women as well as those from out of town who plan to attend the Annual Meeting of the Massachusetts Medical Society, register for all events, before May 28, since only a limited number can be accommodated at the buffet supper at the Junior League and at the Concord Country Club lunch. It is urged that Boston women use their own cars for transportation to and from all events.

Owing to the unexpected number of advance applications for the Concord trip and lunch the Women's Committee regrets that it will be impossible, for the present to accept more than one member from each family registering.

COMMITTEE

- Mrs. William H. Robey, *Chairman*, 202 Commonwealth Avenue, Boston
Mrs. Roger I. Lee, *Vice-Chairman*
Mrs. Herrman L. Blumgart, Mrs. Frederick L. Good, Mrs. Elliott P. Joslin, Mrs. George R. Minot, Mrs. George P. Reynolds, Mrs. William M. Shedden

SCIENTIFIC EXHIBITS

1. *Thyroid Disease* By F. H. Lahey, R. B. Cattell, R. H. Overholt, N. W. Swinton and L. M. Hurxthal, Lahey Clinic, Boston
2. *Tumors of the Lungs* Lahey Clinic, Boston
3. *Carcinoma of the Colon and Rectum* Lahey Clinic, Boston.
4. *Clinical Endocrinology* Lahey Clinic, Boston (Motion Picture, 11 15 A.M., 1 15 and 4 30 P.M. daily)
5. *Lobar Pneumonia*—epidemiology, value of concentrated antibody solution, demonstration of Neufeld typing By the Massachusetts Department of Public Health R. Heffron, Director of Pneumonia Study

6. *Biological Products*—products prepared for free distribution by the State with special reference to immunizing agents By the Massachusetts Department of Public Health, Division of Biologic Laboratories, E. S. Robinson, Director
7. *Collapse Therapy in Pulmonary Tuberculosis*—X rays of types of collapse therapy including unilateral and bilateral pneumothorax, pneumolysis, phrenectomy and thoracoplasty By the Massachusetts Department of Public Health, Division of Tuberculosis, A. S. Pope, Director
8. *Environmental Control*—models, graphs and pictures of municipal and local water supplies and sewage facilities. By the Massachusetts Department of Public Health, Division of Sanitary Engineering A. D. Weston, Director
9. *Coronary Sclerosis*—enlarged photomicrographs of lesions in man and experimental animals with discussion of etiology, course and mechanism By T. Leary, Medical Examiner for Suffolk County, Southern District.
10. *Industrial Dermatitis*—Photographs, short case histories and samples of various irritants found to be causative factors in occupational skin eruptions By J. G. Downing, Boston
11. *Anilin Dye Treatment for Burns*—historical review of burn treatment, photographs of patients and charts of mortality and life expectancy under different types of treatment. By R. H. Aldrich, Boston
12. *Anesthesia*—apparatus, drugs, photographs, diagrams, charts, and descriptions covering the progress of anesthesia since 1846 and explaining the anatomical, physiological, pharmacological and mechanical aspects of modern methods of anesthesia By the Boston Society of Anesthetists
13. *Surgical and Pathological Lesions of the Stomach and Duodenum*—gross specimens, x rays and case histories By W. R. Morrison and G. K. Mallory, Boston
14. *Gastroscopy*—Drawings and photographs showing technique of examination and in tracistic appearance of various lesions By E. B. Benedict, Boston
15. *Sex Hormonology*—charts, graphs and photographs By John Rock, Boston
16. *Fracture Treatment*—demonstration of apparatus, and charts, diagrams and photographs showing approved methods of treatment By F. J. Cotton, H. C. Marble, G. M. Morrison and S. H. Sturgis, Boston

- 17 *The Metastases of Cancer* Gross specimens, photographs and graphs illustrating the metastatic behavior of important types of malignant disease, with particular reference to prognosis and treatment By Shields Warren, Boston
- 18 *Diseases of the Lung*—X-rays, photographs, specimens and charts demonstrating phases of carcinoma and other tumors of the lungs and of bronchiectasis By E D Churchill, D S King and A O Hampton, Massachusetts General Hospital, Boston
- 19 *Aspects of Industrial Medicine and Surgery*—photographs, x-rays, specimens, enlarged photomicrographs, illustrations and charts illustrating diagnosis and treatment of lead poisoning, diagnosis of silicosis, factors contributing to disability in back strain, erysipeloid infections of the hand (so-called "fish infection") and certain industrial dermatoses By H C Marble, J C Aub, R B Hunt, W A Rogers and H Towle, Boston
- 20 *Fungi Pathogenic to Man*—demonstration of methods of staining and examination, cultures of fungi, drawings and photographs of morphology, and correlation of clinical manifestations with various organisms By J H Swartz, N F Conant, Boston, and W H Weston, Director Department of Cryptogamic Botany, Harvard University
- 21 *Plastic Surgery*—photographs, drawings and models By V H Kazanjian, Boston
- 22 *Boston Medical Library* Leaflets and charts illustrating the history, growth, and service of the library, together with representative selections of books By C F Painter, H R Viets, B Spector, J M Faulkner, L Davis, President, and Mr J F Ballard, Librarian, Boston
- 23 *Medical and Social Aspects of the Rheumatic Diseases*—demonstration of the social aspects of arthritis, suggested hospitalization plan in relation to the general practitioner and after-care, end result study and follow-up, and the graphic results of treatment of chronic arthritis, exhibition of simple apparatus useful in its treatment, demonstration of research in relation to joint diseases, including rheumatic fever, and pathological specimens and illuminated roentgenogramical films illustrating the basic nature of the disease and the different types Also demonstrations of physical and occupational therapy with special reference to the treatment of patients with rheumatic diseases, and moving pictures illustrating

the symptom complex and treatment of chronic arthritis

It is planned to hold each day at stated times more or less formal demonstrations of the exhibit and discussions of various phases of the problem by different men especially conversant with these conditions These will be announced daily on placards at the entrance of the exhibit

By R B Osgood, L T Swaim, F B Lowry, F R Ober, W T Green, W Bauer, C S Keefer, and T D Jones, Boston

Arranged by the Thorndike Memorial Laboratory of the Boston City Hospital, the House of the Good Samaritan, The Robert Breck Brigham Hospital, The Massachusetts Department of Public Health, The Arthritic Clinics of the Massachusetts General Hospital The Boston Children's Hospital, The Peter Bent Brigham Hospital, the Boston members of the American Committee for Control of Rheumatism, and the Committee on Physical Therapy of the Massachusetts Medical Society, with the help of the Social Service Departments of the several hospitals

Note Corridor near upstairs checkroom, daily moving pictures as follows

"Advent of Anesthesia", 10 45 A M, 2 and 4 P M

"Clinical Endocrinology", 11 15 A.M, 1 15 and 4 30 P M, also notices and unannounced subjects

MEETINGS OF THE COUNCIL

The *Annual Meeting*, Tuesday, June 4, 1935, at 12 o'clock noon, in the Georgian Room, Hotel Statler Other stated meetings in John Ware Hall, Boston Medical Library, 8 Fenway, at noon, on the first Wednesdays of October and February

CENSORS' MEETINGS

The Censors for the several districts will meet for the examination of applicants for fellowship on the first Thursdays of May and November

The Censors for the Suffolk District will examine applicants residing in that district and also applicants who are non-residents of Massachusetts

Applicants for fellowship should apply to the Secretary of the District Society of the district in which they reside (have a legal residence) at least two weeks before the date of a given examination, taking with them their diplomas

TREASURER'S NOTICE

Assessments, payable in advance, should be paid to the District Treasurers, or, in the case of non-residents, to the Treasurer

Assessments were due January 1. For the convenience of Fellows who have not yet paid such assessments will be received for the Treasurer at the Registration Desk in the Ball Room of the hotel

SECRETARY'S NOTICE

All communications as to membership especially changes of residence and address, should be sent to the Secretary, who keeps a constantly corrected official list of the Fellows and their addresses

Fellows are requested to see that their names and addresses are entered correctly in the Annual Directory and when they move to notify the Secretary. The Directory will be sent only to paid up Fellows

THE JOURNAL

The *New England Journal of Medicine* the official weekly organ of the Society will be sent only to Fellows who have paid their assessments and to such Retired Fellows as may apply for it. Address communications to the Managing Editor of the *Journal*, Dr. Walter P. Bowers 8 Fenway, Boston

COMMERCIAL EXHIBITS

Booth
No

- 1—Association of Certified Milk Producers of Metropolitan Boston 1106 Boylston Street, Boston, Massachusetts

The methods and technical control procedures pursued in the production of Certified Milk will be presented. Certified Milk is produced under medical supervision to fulfill the most exacting requirements of the medical profession for clean, safe milk of optimum nutritional values

- 2—Davies, Rose & Company, Ltd., 22 Thayer Street, Boston, Massachusetts

Will exhibit some of the pharmaceutical products of their Laboratories. Although this firm's preparations are well known to the physicians and surgeons of this and other countries a visit to their booth will prove of definite interest and service to those in attendance at the Society's Annual Meeting. The firm's representatives Messrs. Mansfield Fleming Purinton and Moulton will be pleased to welcome physicians and give full information concerning the preparations exhibited

- 3,4—E. F. Mahady Company, 851 857 Boylston Street, Boston, Massachusetts

The E. F. Mahady Company in addition to displaying new surgical instruments and sun

dries will have on display the Burdick Short Wave Diathermy Model SVD-5 the Elliot Treatment Regulator for the treatment of Pelvic Inflammatory conditions and a new Burdick machine for the treatment of Vascular Diseases of the extremities by positive and negative air pressure. Don Baxters Intraosseous Solutions in Vaccoliter will also be shown

- 5—Horlick's Malted Milk Corporation, Racine, Wisconsin

Will explain the special uses of Horlick's Malted Milk, natural and chocolate flavors as a food of remarkably nutritive and digestible qualities both in sickness and in health. Samples of Horlick's Malted Milk Tablets will be distributed as a reminder of their usefulness as a pleasing variant in the liquid diet, and as a beneficial confection for children

- 6—Cambridge Instrument Company, Inc., 3732 Grand Central Terminal, New York City

Exhibit of electrocardiographs and accessories

- 7—Mead Johnson & Company, Evansville, Indiana

Will have on exhibit its complete line of infant diet materials including Dextral Maltose Nos 1, 2 and 3 Dextral Maltose with Vitamin B Mead's Standardized Cod Liver Oil Mead's Viosterol in Oil Mead's Cod Liver Oil with Viosterol Mead's Viosterol in Halibut Liver Oil (liquid and capsules) Mead's Halibut Liver Oil Mead's Brewers Yeast (tablets and powder) Pabulum Mead's Cereal Sobee, Mead's Powdered Protein Milk, Mead's Powdered Lactic Acid Milk Nos 1 and 3 Mead's Powdered Whole Milk, Alacina, Reolac and Casein

There will also be for the examination of physicians a complete line of Mead's Services such as "Diets for Children from Four Months to Four Years" height and weight charts, etc., all of which are free to members of the medical profession in any quantity desired

Representatives will be on hand to meet their friends and to discuss the application of any of the Mead products to infant feeding problems

- 8—Mellin's Food Company of North America, Boston, Massachusetts

Mellin's Food Milk Modifier will occupy Booth 8. The proportion of maltose and dextrins in Mellin's Food the protein and mineral salts content and the favorable effect of Mellin's Food on the digestibility of milk are distinctions that commend Mellin's Food as a modifier of milk for the feeding of infants

- 9—Tailby Nason Company, 49 Amherst Street, Cambridge, Massachusetts

Manufacturers of Nason's Palatable Cod Liver Oil have reserved Booth No. 9. The Giant Cod and photographs of the Lofoten Fisheries in Norway will be an interesting part of their exhibit of Cod Liver Oil. All members of the Society and their friends are cordially invited to visit this exhibit

- 10—H G Fischer & Company, 2323-37 Wabansia Avenue, Chicago, Illinois
Exhibit of electrotherapeutic equipment
- 11—Philip Morris & Company, Ltd., Inc, 119 5th Avenue, New York City
Manufacturers of Philip Morris cigarettes, have been studying the effects of smoking on irritation of the mucous membrane of the upper respiratory tract. A member of the research staff will be available to explain the work and the results obtained. Samples of Philip Morris cigarettes will be distributed.
- 12—General Foods Corporation, Postum Building, 250 Park Avenue, New York
General Foods invites you to Booth 12 to try some Sanka Coffee, an excellent blend of fine coffees with 97 per cent of the caffeine removed.
- 13, 14—Merck & Company, Inc, Rahway, New Jersey
Tryparsamide Merck is the chemotherapeutic agent of choice for the treatment of neurosyphilis. Its use is an office procedure. It is administered intravenously, does not disrupt the patient's daily routine of life, and is inexpensive. Full information can be obtained at the Merck Booth.
- 15—The E L Patch Company, Stoneham P O, Boston, Massachusetts
Representatives will be on hand to answer your questions concerning Patch's Flavored Cod Liver Oil, Halibut Liver Oil and other well-known Patch products.
- 16—Surgeons and Physicians Supply Company, 761 Boylston Street, Boston, Massachusetts
Will exhibit a line of Cystoscopes and accessories manufactured by the American Cystoscope Makers, Inc. They will also exhibit the Allergiest Mattress and Pillow for relief of Asthma and Hay Fever. There will also be a general line of new and interesting surgical instruments and supplies.
- 17—Sandoz Chemical Works, Inc, 61-63 Van Dam Street, New York City
Will feature *Gynergen*, the only product of the specific ergot alkaloid "Ergotamine" in pure and stable form. It is most dependable as a uterine hemostatic and for the non-narcotic relief in many cases of migraine headache. *Calcglucon*, the original high purity brand of calcium gluconate, offered in sterile, stable 10 per cent and 20 per cent ampule solution for safe intravenous and intramuscular calcium therapy, also in tablets and granules for oral use. *Scillaren*, brand of pure squill glucosides, a reliable cardiodiuretic. *Sandoptal*, meets all the requirements of an effective hypnotic. A new Sandoz catalogue will be available for distribution.
- 18—Thayer McNeil Company, 47 Temple Place, Boston, Massachusetts
Will exhibit their high grade line of Plastic Shoes, straight inner line flexible arch shoes, and Safety Arch Shoes.
- 19—Charles W Broadbent Company, 665 Huntington Avenue, Boston, Massachusetts
Will exhibit a line of surgical supplies and medical textbooks.
- 20—General Electric X-Ray Corporation, 624 Beacon Street, Boston, Massachusetts.
Will have an exhibit of x-ray and physical therapy apparatus which should prove interesting to the visiting physician. Several changes in design have been made to improve the radiographic qualities of the Model "F" Portable Shock Proof X-Ray Unit and the Model "D" Mobile Shock Proof Unit. Mr J Roderick will be in charge of our exhibit and will be glad to meet his friends and explain the new improvements.
- 21—E R Squibb & Sons, 745 Fifth Avenue, New York City
The Squibb Exhibit will feature preparations selected from the following groups: Vitamin Products, Anesthetics and Hypnotics, Glandular Products, Biologicals, Pollen Extracts, Anti Venereal Disease Products and Pharmaceutical Specialties. With the wide range of preparations, nearly every physician, whatever the nature of his practice, is certain to find on display many items of interest. Competent representatives from the Squibb Professional Service Department will be constantly in attendance and will be glad to discuss the numerous Council Accepted Squibb Products with you.
- 22—The DeVilbiss Company, Toledo, Ohio
Manufacturers of medicinal atomizers, will exhibit a complete line of atomizers and vaporizers for both home and professional use. A prominent feature of the DeVilbiss Exhibit will be the recently developed DeVilbiss Nasal Guard, which prevents any excess pressure in the nasal passages during prescribed self treatment. Mr E Manning will have charge of the display of Medicinal Atomizers. All delegates to the convention are cordially invited to visit the DeVilbiss display.
- 23—H J Heinz Company, Pittsburgh, Pennsylvania
'57 Varieties' exhibit in Booth 23 will display an interesting line of products. The Heinz line of baby foods will be included.
- 24—Lederle Laboratories, Inc, 511 Fifth Avenue, New York City
Will exhibit a variety of their high grade biological products.
- 25—Sanborn Company, 39 Osborn Street, Cambridge, Massachusetts
Sanborn Company will exhibit metabolism and electrocardiograph equipment. See the *electric, inkless* Motor-Graphic Metabolism Tester, and the redesigned Sanborn Electric-Porto-cardiograph that is lighter weight, more compact, at lower prices, and that makes electrocardiograms entirely free from overshooting! Ask to see Redux, the new resistance-reducing electrode paste developed and perfected by Sanborn Company.

26—S H. Camp & Company, Jackson, Michigan.

Will display Camp Surgical Supports introducing some new additional useful ideas and designs, and improved phases of construction to their line along with those supports which have become so widely used. You are cordially invited to visit their booth and acquaint your self with the latest developments in the surgical support field

27—Gerber Products Company, Division of Fremont Canning Company, Fremont, Michigan

Gerber's new method of Shaker-Cooking will be explained. There are illustrations and charts of this new process and samples open for inspection

Booklets and leaflets are available. Some of these are suitable for distribution by physicians while some are for professional use only

28—Bilhuber Knoll Corporation, 154 Ogden Avenue, Jersey City, New Jersey

New reports on the results obtained with the fine medicinals of Bilhuber Knoll are all ways of interest. These products include Dilaudid for painful conditions requiring an opiate, the well-tolerated purine Theocalcin, so useful in the treatment of congestive heart failure, angina pectoris and spastic conditions of the circulatory system and the non-barbiturate sedative and hypnotic, Bromural

Representatives of the Company will be pleased to discuss these and other well known "Council Accepted" products with interested physicians

29—Kellogg Company, Battle Creek, Michigan.

Doctors are invited to visit the Kellogg booth for a cup of refreshing Kaffee Hag Coffee. The exhibits showing the stages in decaffeinating coffee are displayed and complete explanation of process is given. Reprints of recent articles in the *Journal of Pharmacology and Experimental Therapeutics* on the Effects of Caffeine based on reports of research at the University of Michigan are available

Kellogg's All Bran carries the Seal of Approval of the American Medical Association. Reprints of reports covering research on bran at Columbia University will be distributed at the booth. The exhibit is in charge of Mrs. Winifred B. Loggans from the Home Economics Department, Battle Creek Michigan

30—The Medical Protective Company, Wheaton, Illinois.

Our representatives will greet old friends and make new ones. Ask us about the only Service of its kind. Let us tell you why a doctor can have better liability protection than is available to any other class

31—Otis Clapp & Son, Inc., 439 Boylston Street, Boston, Massachusetts

Will exhibit their Malt Compound some of their Obtundia preparations and Emagrin Tablets

32—Petrolagar Laboratories, Inc., 8184 McCormick Boulevard, Chicago, Illinois.

There are now five types of Petrolagar available for the specialized treatment of constipation

Each type serves a special purpose and enables the physician to fit the treatment to the particular need of the patient.

Samples of each of these five types may be obtained at booth No 32

33—Electro Therapy Products Corporation, E J Rose Manufacturing Company, 711 Boylston Street, Boston, Mass.

You are cordially invited to our booth to inspect our complete line of Physical Therapy equipment and accessories, including the original COLD QUARTZ ultra violet lamps and ROSE SHORT WAVE medical and surgical diathermy infra red lamps and low tension equipment.

34, 35, 36—Scientific Exhibits**37—M. & R. Dietetic Laboratories, Inc 585 Cleveland Avenue, Columbus, Ohio****38—The Coward Shoe, 30 West Street, Boston, Massachusetts**

As Coward shoes are made over seventy nine distinctly different shaped lasts Coward Company will display seventy four models of these lasts and a group of shoes to which these lasts correspond. This display is very interesting as it affords an opportunity to visualize just the shape of the inside of the shoe

39, 40—Hynson, Westcott & Dunning, Inc., Baltimore, Md

Behind Mercurochrome—H W & D is a background of careful investigation and control. Every lot is submitted to chemical analysis at each stage in the process of manufacture. The finished product is bacteriologically standardized. Pharmacological tests are made as a final check. Mercurochrome has been the subject of comment and discussion in more than four hundred publications in leading technical and clinical journals. It has a background of twelve years satisfactory performance under clinical conditions. Accepted by Council on Pharmacy and Chemistry of American Medical Association

41, 42, 43—Scientific Exhibits.**44—Crosbie Macdonald, 79 Milk Street Boston.**

For over twenty five years serving the members of the Massachusetts Medical Society in their insurance needs

45—Winthrop Chemical Company, Inc successor to H. A. Metz Laboratories, Inc., 170 Varick Street, New York, New York.

Will exhibit pharmaceuticals of merit for the physician.

46, 47, 48—Scientific Exhibits**49—Kelley Koett X Ray Company, 25 Huntington Avenue, Boston, Massachusetts.**

In this booth the Kelley Koett X Ray Company will exhibit the Keleket X Ray Machine Cat. K 90 and such accessories as are needed to complete an installation

50—Lea & Febiger, 600 South Washington Square, Philadelphia, Pennsylvania

Will exhibit a number of new books of unusual importance, as well as new editions of established works well known to the profession. Among the new books will be found the long-awaited Graham, Singer and Ballou's "Surgical Diseases of the Chest", Berglund and Medes' résumé of the symposium held at the University of Minnesota—"The Kidney in Health and Disease", Cowdry's "Histology", a radical departure from the conventional texts on this subject, Wiggers' "Physiology", Adair and Stieglitz's "Obstetric Medicine", Feinberg's "Allergy", Clapp on "Cataract", Atkinson's "External Diseases of the Eye", and Duncan's "Diabetes and Obesity".

The standard works now shown in new editions include Bridges' "Dietetics for the Clinician", Musser's "Internal Medicine", Romanis and Mitchiner's "Surgery", Boyd's "Text Book of Pathology", Kuntz's "Autonomic Nervous System", Fishberg's "Hypertension", Nicholson's "Laboratory Medicine", Joslin's "Diabetic Manual", Treves' "Anatomy", and Kovacs' "Electrotherapy".

51—The Macmillan Company, 240 Newbury Street, Boston, Massachusetts

Presents for your inspection many important books in several medical specialties. Seventeen of the works displayed were written by Massachusetts authors. In particular, we hope to show two new books soon to be published

HARVARD MEDICAL ALUMNI ASSOCIATION

The Annual Meeting of the Harvard Medical Alumni Association will be held in Parlor D, Hotel Statler, on Monday, June 3, at 12 30 P M. A luncheon will follow the business meeting—price \$1 00.

VERNON P WILLIAMS, M D, *Secretary*
319 Longwood Avenue, Boston

TUFTS MEDICAL SCHOOL ALUMNI ASSOCIATION

The Tufts Medical School Alumni Association has planned a luncheon for Monday, June 3, at 12 30 P M, in the President's Room at the University Club. A year ago the Executive Council of the Association decided to arrange a luncheon in connection with the annual meeting of the Massachusetts Medical Society. The speaker will be Dr Iago Galdston, executive secretary of the Medical Information Bureau of the New York Academy of Medicine, whose subject will be "The Economic and Social Aspects of Socialized Medicine—An Analysis of the Socio-Economic Issues Involved".

Anyone interested in this problem is invited to attend. Reservations may be made through

THE AUTONOMIC NERVOUS SYSTEM by James C White, and DIAGNOSIS AND TREATMENT OF SKIN DISEASES by Jacob H Swartz and Margaret G Reilly

52—Massachusetts State Pharmaceutical Association, 20 Glen Road, Newton Center, Massachusetts

Will, as usual, present an exhibit of U S P and N F preparations made by pharmacists in their own laboratories. The exhibit will be in charge of T Joseph McAuliffe and Carl G A Harring.

53—Bard-Parker Company, Inc, Danbury, Connecticut

Makers of high grade surgical instruments, will exhibit Bard-Parker Knives with detachable blades, Bard Parker scissors with renewable edges, Bard Parker Lahey-Lock forceps, and Bard-Parker sterilizing containers.

54, 55—Westinghouse X-Ray Company, Inc, 270 Commonwealth Avenue, Boston, Massachusetts

Manufacturers of electro-medical apparatus

56—Campbell X-Ray Company of Boston, 92 Brookline Avenue, Boston, Massachusetts

Will exhibit some new inventions in x ray high frequency apparatus and accessories

the secretary, Dr Robert T Phillips, 270 Commonwealth Avenue, Boston

MASSACHUSETTS ALUMNI OF UNIVERSITY OF MARYLAND MEDICAL SCHOOL, BALTIMORE MEDICAL COLLEGE, AND COLLEGE OF PHYSICIANS AND SURGEONS, BALTIMORE

The Annual Luncheon-Meeting will be held at the University Club, Boston, Tuesday, June 4, at 12 30 P M.

Make reservations through Dr Charles W Finnerty, 395 Commonwealth Avenue, Boston
CHARLES E GILL, M D, *Secretary*

MASSACHUSETTS MEDICO-LEGAL SOCIETY

The Massachusetts Medico-Legal Society will meet Tuesday, June 4, at the Hotel Statler, Boston, at 2 00 P M.

Dr Edgar R Frankish, Medical Examiner for the Province of Ontario, will give an address on the habits and customs of his office. Dr William F Boos will speak on "What Is Normal Arsenic?"

FRITZ W GAY, M D, *President*
MYRTLE M CANAVAN, M D,
Secretary-Treasurer

CASE RECORDS
of the
MASSACHUSETTS GENERAL
HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.

CASE 21211

PRESENTATION OF CASE

A seventy four year old American widow entered complaining of abdominal pain.

The patient had been quite well until the morning of admission when she suddenly developed upper abdominal pain, associated with vomiting, and collapsed. A physician found a blood pressure of about 80 to 90 systolic. She was known to have had a blood pressure of approximately 200 systolic. She became distended and was immediately admitted to the hospital.

Physical examination showed a well-developed, thin, elderly woman in acute distress from severe abdominal pain. There were a few fine rales at the right base. The heart was not enlarged. A soft systolic murmur was heard over the aortic area. The abdomen was distended and tender in both lower quadrants, more marked on the left. A questionable mass was felt in the left lower quadrant. There was no spasm of the abdominal muscle although when examined she had one or possibly two spasms of abdominal pain which caused her to writhe somewhat but which passed off quickly. Peristalsis could be heard in the left lower quadrant. A rectal examination was negative.

The temperature was 96.8°, the pulse 105. The respirations were 26.

Examination of the urine showed a specific gravity of 1.015 to 1.020, a slight trace of albumin and a sediment which contained 10 white blood cells, numerous bacteria and an occasional hyaline cast. The blood showed a white cell count of 50,000 although one taken earlier that morning before admission was 16,000.

A plain abdominal film showed gas in the cecum and transverse colon but none in the descending and sigmoid colon. There was no definite dilatation of the small intestine.

She continued to vomit on the day of admission. The vomitus contained no blood. An exploratory laparotomy was immediately performed and about one liter of dark bloody fluid was evacuated from the peritoneal cavity. The bleeding was believed to be located around the upper end of the abdominal aorta.

Following operation her blood pressure dropped but returned to 110 systolic after intravenous glucose. Her temperature ranged between 100° and 102°. On the day following op-

eration she developed flaccidity of the left arm and leg and some weakness of the right leg. The right arm was not involved. The facial muscles on the left were weakened. On the second postoperative day the blood pressure suddenly rose to 180 systolic and remained high all that day. The following morning she appeared a little brighter, her pulse was 110 but suddenly she was found in complete collapse and died in a few minutes.

DIFFERENTIAL DIAGNOSIS

DR. A. W. ALLEN. I presume that the patient came in very early in the morning and was not operated on until late in the morning.

DR. J. H. TOWNSEND. I do not think the history gives a very good picture. This woman's original attack of pain came the night before. She had been out on a party, although she was seventy four, got home rather late, about midnight, and just as she stepped inside the door she had a very severe attack of pain and collapsed. She was seen promptly and her blood pressure was found to be 90/60 although it had been previously known to be over 200. Early the next morning, at about six o'clock, she was seen again. She had vomited two or three times during the night and the picture had changed considerably. She was not having much pain but by morning she had developed a big, distended, rigid abdomen. I do not think the physical examination brings out the fact that she had a distended and very rigid abdomen generally, not just in the lower part.

DR. ALLEN. The interval is perhaps greater than the history would lead me to believe. It was approximately twelve hours between onset and operation.

DR. TOWNSEND. Yes.

DR. ALLEN. That might be helpful.

Would Dr. Holmes like to present the x rays now?

DR. G. W. HOLMES. As stated in the notes, the x ray films fail to show any evidence of free gas in the abdomen. They also fail to show any definite evidence of obstruction in either the large or small bowel. There is a rather large amount in the cecum, but perhaps not more than we would expect. We can see shadows of both kidneys in this film, they are very small. Whether that is just because she is a thin woman and close to the film, I do not know, but I suspect that the kidneys are small. She had a long narrow liver. There is no evidence of calcification in the abdominal aorta.

DR. ALLEN. Of course this patient was arteriosclerotic, carrying a blood pressure of 200 systolic before she had this sudden collapse. She was obviously in shock when Dr. Townsend saw her, shortly after her very sudden onset. Something very acute had happened to this individual. Various things can produce collapse, coronary thrombosis or a ruptured aorta, low viscous or acute hemorrhage, and doubtless

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY*

THOMAS ALMY, M.D.,
Chairman,
140 Rock Street,
Fall River, Mass

C. J. KICKHAM, M.D.,
Secretary,
524 Commonwealth Avenue,
Boston, Mass

RESUMÉ OF USE OF RADIOTHERAPY IN TREATMENT OF UTERINE FIBROIDS

THE treatment of uterine fibroids with radium or x-ray is limited to a comparatively small group of carefully selected cases and should never be used as a routine. No patient should be treated by x-ray or radium without first having had a careful examination under an anesthetic, including a dilatation of cervix, curettage and biopsy of the cervix and endometrium. This should be done, not only to exclude malignancy, but also a submucous fibroid which ordinarily contraindicates radiotherapeutic measures.

Radiotherapy, the term being employed for use of either radium or x-ray, gives the best results when used for the treatment of small, interstitial fibroids causing hemorrhage in women nearing the menopause. It may be used in the treatment of younger women or in patients with larger tumors if operation is contraindicated. As a rule a dosage sufficient to cause an artificial menopause is required to accomplish a cure. Smaller doses may temporarily improve the condition, but symptoms are apt to recur. Hemorrhage may be arrested without marked shrinking of the tumor. This indicates that the beneficial results are obtained largely by the action on the ovaries, rather than by direct action on the tumor.

The contraindications to this type of treatment are as follows:

1 Incarcerated tumors or tumors causing symptoms other than hemorrhage.

2 Submucous fibroids. As this type of tumor commonly causes bleeding, the fact that it does not respond well to radiotherapy greatly limits the field of usefulness of this treatment.

3 Pedunculated fibroids, as there is danger of sloughing.

4 Pelvic inflammatory disease. An old infection may be lighted up causing peritonitis.

5 Suspected degenerative changes in a fibroid. As practically all fibroids the size of a three months' pregnancy or larger show degenerative changes, tumors of this size are not suitable for radiotherapy. Radium does not convert such tumors into fibrous connective tissue,

* A series of short selected articles by members of the Section will be published weekly.

Comments and questions by subscribers are solicited and will be discussed by members of the Section.

but increases the extent of degeneration and favors absorption of toxic products.

6 Suspected malignancy.

7 Previous pelvic operations. In patients who have had a pelvic operation there is danger of an adherent loop of bowel being exposed to the rays, causing injury to bowel and possible later gangrene with intestinal obstruction.

As no case should be treated by x-ray or radium without a preliminary examination under an anesthetic, and a diagnostic curettage, the application of radium if available, should be made at the same time. Generally, one application is sufficient. If radium is not available and, after examination, it is decided the case is suitable for treatment by radiotherapy, the patient may be referred for x-ray. In properly selected cases there should be no mortality and the time which the patient must spend in the hospital is greatly shortened. A small percentage of cases may later require operative removal of the tumor.

SECOND ANNUAL POSTGRADUATE MEDICAL EXTENSION COURSE

The following sessions have been arranged by the Committee for the week beginning May 26.

Bristol South (New Bedford Section)

Friday, May 31, at 4 00 P.M., at the St. Luke's Hospital, New Bedford. Subject: The Common Neuroses and Their Treatment in Private Practice. The Psychoses — Early Diagnosis.

Worcester (Milford Section)

Friday, May 31, at 8 00 P.M., at the Milford Hospital, Milford. Note change of date on account of holiday. Subject: Cardiovascular Disease (Third Session). Joseph I. Ashkins, M.D., Sub Chairman.

MISCELLANY

AN HONOR TO DR. ELLIOTT C. CUTLER

At the annual meeting of the Associated Harvard Clubs, Dr. Elliott C. Cutler, Moseley Professor of Surgery of the Harvard Medical School and Chief of the Surgical Service of the Peter Bent Brigham Hospital, was elected President.

A PORTRAIT OF DR. MILTON J. ROSENAU PRESENTED TO HARVARD MEDICAL SCHOOL

The portrait of Dr. Rosenau, a leader in preventive medicine and public health research, was presented to the school by a committee of Dr. Rosenau's colleagues, headed by Dr. Elliott P. Joslin, May 14.

The portrait was painted by Jacob Binder, noted Boston artist, and will be hung in the faculty room.

of the Administration Building at the Medical School. The simple ceremonies at the presentation took place at 5 P.M. Dr. Rosenau occupies the Charles Wilder Professorship of Preventive Medicine and Hygiene, and is retiring this year after a quarter of a century of distinguished service which has brought his work international recognition.

Besides Dr. Elliott Joslin, who acted as chairman, the members of the committee which presented the portrait were Dr. Harvey Cushing, Dr. Henry D. Chadwick, Dr. Reid Hunt, Dr. Samuel C. Prescott, Dr. Edwin B. Wilson, Dr. Wilson G. Smilie, and Dr. Joseph W. Schereschewsky, with Dr. Lloyd D. Selton.—*Boston Transcript*

THE APPOINTMENT OF DR. BOCK

The vacancy to occur because of the resignation of Dr. Alfred Worcester, Oliver Professor of Hygiene, Harvard University, has been filled by the appointment of Dr. Arlie Bock to this position. Dr. Bock brings to this department qualifications which insure a successful administration of the important duties involved in the oversight of the conditions affecting the health of the undergraduates.

It is reported that he will continue his service at the Massachusetts General Hospital.

AMERICAN COLLEGE OF PHYSICIANS

At the annual session of the American College of Physicians held early in May in Philadelphia, Dr. Charles F. McKhann of the Children's Hospital and the Harvard Medical School presented a paper on the use of human placental extract in preventing measles and other acute contagious diseases. A series of 1,258 individuals who had been exposed to measles was reported. In these cases the injection of placental extract had been valuable in preventing or modifying the disease.

Dr. James F. Rhinehart, assistant professor of pathology at the University of California Medical School, reported that guinea pigs on a diet deficient in vitamin C developed a disease similar to rheumatic fever. If injected with the proper streptococcus. In the absence of infection the animals kept for a prolonged period of time on the deficient diet developed changes in the joints similar to those of chronic arthritis.

Dr. Charles W. Wainwright of Baltimore reported that 66 per cent of cases of chronic rheumatoid arthritis were much improved after treatment with a vaccine prepared from streptococci to which they had been found to be skin sensitive.

The John Phillips Memorial Medal was presented to Dr. Leo Loeb, professor of pathology at Washington University, largely on account of his work on the thyroid stimulating hormone of the anterior portion of the pituitary gland. Eighty-three physicians were elected to fellowship and 149 to associateship in the College.

CANCER STATISTICS FOR 1934

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH DIVISION OF ADULT HYGIENE

The following is an abstract of the "Annual Report of the Division of Adult Hygiene for the Year 1934."

The attendance at the State-aided cancer clinics in 1934 was 4,256—an increase of 8.5 per cent over the preceding year. More females attended the clinics than males. Cancer cases comprised 23.3 per cent of the total admissions. Nine hundred and ninety-two individuals with cancer were seen. These individuals had 1,041 cancers and appeared 1,058 times at different clinics. There is very little change in the percentage of individuals having cancer throughout the years in which the cancer clinics have been in operation. The highest rate in any year was 25.4 in 1930 and the lowest rate 21.0 in 1928. The percentage of individuals with precancerous lesions has increased from 11.6 in 1933 to 13.8 in 1934. This is gratifying as the removal of precancerous lesions is probably the best attack upon the disease at the present time. This year showed the highest percentage of precancerous lesions of any of the years. Only about 4 per cent of the individuals who came to the clinics had no pathology. This figure is about the same as that for previous years. The median age of both the cancer patients and the total clinic attendance has remained practically constant throughout the eight years of clinic operation.

In 1934 the Pondville clinic had about three times as many patients as the next largest clinic and comprised about one-third of the total clinic attendance. Brockton, Lowell, Lynn, New Bedford and Springfield had over 300 patients each; the Boston Dispensary and Worcester over 200; and Lawrence and Worcester North over 100. Newton and the Berkshire clinics had less than 100 cases. The percent age of cancers varied considerably in the different clinics. Berkshire, Brockton, Lowell, New Bedford, Springfield, and Worcester North had rates of less than 20 per cent, while Newton, Lawrence and Pondville had rates of over 30 per cent. The percentage of individuals with cancer has decreased in all clinics save Newton, Lynn, and Pondville. On the other hand the percentage of individuals with precancerous lesions has increased in all clinics save New Bedford, Worcester and Newton. The highest percentages of precancerous lesions were found in the Boston Dispensary, Pondville and Lynn clinics.

In every clinic with the exception of Newton, in which the number of cases is too small to be significant, the cancer rate among those referred by physicians greatly exceeded the rate among those not referred.

The median duration before the first visit by the patient to a physician showed little change between the years 1933 and 1934. A similar situation exists for duration before first visit to a cancer clinic. Evidently further efforts are needed to reduce the period of delay.

The duration before coming to a clinic subdivided by contact with physician showed little change between this year and the preceding one with the exception of the group that consulted no physician. Here there has been an increase. The group that came earliest to the clinics is that which consulted one physician and was referred by him to the clinic. Even in this group the interval is too long.

The percentage of cancer patients who came to the clinics referred by physicians has continued to increase, while the percentage referred by newspapers has decreased. In 1927 physicians referred 47.3 per cent of the cancer patients, while in 1934 this figure had increased to 70.5. About half of the individuals with precancerous lesions were referred by physicians and one-fifth by newspapers.

The percentage of individuals who came to the clinics at the advice of physicians has remained about the same in 1934 as in 1933, while the percentage who came because of newspaper publicity has increased. Inasmuch as the cancer cases referred by physicians showed an increase and those referred by newspapers a decrease, the indication is clear that the newspapers are increasing the attendance of individuals not having cancer.

Cancer patients who came to the clinics referred by physicians comprised 70.5 per cent of all cancer cases in 1934, compared with 68.3 in 1933 and 64.0 in 1932. The newspapers were responsible for only 9.3 per cent of the cancer cases in 1934.

The distribution of cancers coming to the clinics in 1934 showed a decrease in cancer of the buccal cavity and uterus and an increase in cancer of the breast and skin. Inasmuch as cancer of the uterus and cancer of the breast have nearly the same number of deaths, it seems unfortunate that the number of individuals with cancer of the uterus coming to the clinics has declined.

Of the total cancer patients coming to the clinics, 11.6 per cent had never consulted a physician, 14.1 per cent had consulted one or more physicians but had come of their own volition, 38.4 per cent had consulted one physician and were referred by him, 30.6 per cent had consulted more than one physician and had been referred by the last one consulted. These figures differed little from those of the preceding year.

The distribution of the cancer cases in the group that came directly to the clinics without consulting a physician differed radically from the other three groups. This group showed a larger percentage of skin and breast cancers, and a much smaller percentage of all other types. Apparently educational activities are not so influential in cancer of the uterus as in cancer of the mouth, breast, and skin.

The percentage of individuals who had never seen a physician prior to their clinic visit was less in 1934 than in 1933, which in turn was less than in 1932. There appears to be a steady increase in the percentage of cases coming to the clinics who have seen physicians.

The symptoms that first brought patients to the

clinics closely resembled those of previous years. It is disappointing to note that so large a percentage of the cancer patients come because of pain. For the last three years the percentage of individuals with cancer who came with pain as a symptom has remained practically constant.

Both males and females showed an increase in operable cancer with a chance for probable cure. This indicates that patients are arriving at the clinics at an earlier period in the disease. Buccal cavity and skin were the two types that showed the greatest improvement. The breast cases showed a decrease, which is discouraging. While there was a slight improvement in the percentage of operable cancer with probable cure for cancer of the uterus over the preceding year, the fact that only 7 per cent of the individuals with cancer of the uterus comes sufficiently early to be classified as probable cure is most discouraging.

Nearly half the males were classified as operable cancer with probable cure and slightly over one-third of the females. There was considerable variation between the various clinics. This great discrepancy is probably due largely to different interpretations in the clinics, as it does not seem reasonable to believe that such great differences actually occurred.

THE BOSTON DISPENSARY HEALTH SERVICE PLAN

The Health Service Plan described below is initiated for the benefit of employees of the Boston Dispensary and the New England Medical Center, as well as for the advantage of the institutions themselves. It is an effort to maintain a standard of health supervision in keeping with the best principles of preventive medicine.

The plan as outlined will undoubtedly be improved as a result of experience. While the requirements as regards physical examination are not obligatory to the older members of the employed staff, it is hoped that all will recognize the advantages, and cooperate voluntarily to the fullest extent — a condition which is essential to the complete success of the plan.

Professional direction and supervision of the service will be assumed by Dr. Katherine S. Andrews, of the Department of Medicine, who has been appointed Health Officer. Dr. Andrews will be assigned an office in Room 257 of the Center Building, where she may be consulted on all questions of current illness and for routine physical examination, according to a schedule which will be announced later.

1 *Records* The confidential character of medical records will be strictly observed. All records now in the Record Room, or Diagnostic Hospital, will be transferred to a file kept under lock and key in Dr. Andrews' office.

2 *Routine Physical Examination* will be required of all prospective employees. Such examination will be strongly urged upon all present employees and may be required when, in the opinion of the

Department Head and the Health Officer it is considered necessary as a health measure. A certificate from an outside physician will be accepted, if submitted on an approved form.

3 The findings of the Dispensary will be available to the family physician.

4 *Treatment* The Dispensary will offer clinic care as at present, cost and materials only to be charged. Hospital care will be necessarily limited to those types of cases eligible under the rules. The Dispensary assumes no responsibility for home care. Employees who have been absent because of illness must be seen by the Health Officer on the day of return to work and the Department Head notified of the result of this check up.

5 *Procedure in Current Illness* Whenever question as to the desirability of medical attention may arise, the employee should report to the Department Head, who will arrange with the Health Officer for a consultation.

FRANK E. WING, Director

May 1, 1935

CORRESPONDENCE

LIVER FUNCTION TESTS

May 7 1935

Editor *New England Journal of Medicine*,

In a recent review in this *Journal* (Vol. 212, 764 [Apr. 25] 1935) on "Progress in Gastro-Enterology for 1934" Emery summarily dismisses the subject of liver function tests with the standardized objections that (1) the reserve of the liver is so great that the organ must be badly diseased before impairment becomes evident, and (2) the functions of the liver are so numerous that no single test can be of much value. These statements have been repeated so often that they have almost acquired the authority of facts. Since they definitely are an obstacle to progress in the study of liver diseases, it becomes necessary to point out their falsity.

The functional reserve of the liver has been overestimated because of the predominance of the surgical rather than the physiologic point of view. To be sure, a large portion of the liver may be removed surgically with impunity but it must be remembered that the portion remaining is healthy tissue. But subject a liver to chloroform and an amazing impairment of liver function can be promptly and readily demonstrated. Likewise clinically a profound hepatic disturbance often results from surprisingly small doses of widely used therapeutic agents. Thus a healthy young woman when given 2 cc. of carbon tetrachloride orally developed an acute hepatitis with a reduction of her hepatic function to 17 per cent as measured by the hippuric acid test (*Am. J. Med. Sc.* 185: 630 [May] 1935. *Arch. Int. Med.* in press). With effective therapy she improved rapidly clinically and her function returned to 85 per cent in 6 weeks. Likewise in catarrhal jaundice the hippuric acid function test gives consistently low

results again suggesting that the margin of safety is rather limited and may easily be exceeded.

While the functions of the liver are numerous there are only three types of functioning hepatic cells and it seems logical that any toxic agent which injures either one or all of these types of cells will affect all their functions. Therefore a true hepatic function test even though it may measure only one function should disclose liver damage. The hippuric acid test which depends on the rate of the synthesis of glycine and on the conjugation of benzoic acid with glycine, tests liver function since there is good evidence that both processes in man take place mainly in the liver. Therefore it is not surprising that the test yields low results in a variety of liver damage both chronic and acute with and without jaundice.

A liver function test discloses primarily hepatic insufficiency but does not necessarily serve as an infallible differential diagnostic indicator. When hepatic injury occurs whether from a toxin or a malignant common duct obstruction or an allergic inflammatory reaction, a true function test will give low results without necessarily giving much indication as to what type of injury is present. Failure to recognize this limitation of functional tests in general has led to the practice of indiscriminately condemning them without appreciating their value as a means for estimating hepatic insufficiency.

Very truly yours

ARMAND J. QUICK, M.D.

208 E. Wisconsin Avenue,
Milwaukee Wisconsin

A REJOINER

May 11 1935

Editor *New England Journal of Medicine*

Dr. Quick objects to two statements of mine concerning liver function tests on the grounds that they are false and that they are definitely an obstacle to progress in the study of liver diseases.

So far as their falsity is questioned, I should like to point out that he quotes me as saying "the reserve of the liver is so great that the organ must be badly diseased before impairment becomes evident" whereas what I did say was "Therefore, with such a large factor of safety the liver may be badly diseased before any functional test will give evidence of impairment." Also the second statement of mine to which he refers namely "In view of the large number of functions which the liver performs it is difficult to understand how any single test can be of much value" does not imply quite the same thing as it does when he abbreviates it in his letter to say "the functions of the liver are so numerous that no single test can be of much value."

I am still unable to find anything in either of these statements of mine which in view of what is known at present about the functional tests of the liver or in view of what he states in his letter can be condemned as false.

One not infrequently sees patients with a carcinoma in the parenchyma of the liver which destroys

large portions of the organ, but leaves tissue which functions normally. Disease, therefore, may produce a situation analogous to the work of F. C. Mann which I quoted and Dr. Quick states, "To be sure a large portion of the liver may be removed surgically with impunity, but it must be remembered that the portion remaining is healthy tissue." His statement, "While the functions of the liver are numerous, there are only three types of functioning hepatic cells, and it seems logical that any toxic agent which injures either one or all of these types of cells will affect all their functions. Therefore, a true hepatic function test even though it may measure only one function should disclose liver damage", is to my knowledge only an assumption and has not been proved.

Statements which attempt to evaluate a clinical test are not an obstacle to progress unless they can be proved to be false. "Progress in Gastro Enterology for 1934" is not the place to discuss the various arguments for and against all the work that has been done on liver function tests. As I wrote there, inasmuch as the articles which I read on liver function tests contributed little of value during the past year, I made no attempt to abstract them.

Very truly yours,

EDWARD S. EMERY, JR., M.D.

319 Longwood Avenue,
Boston, Mass.

A LETTER TO THE MEDICAL PROFESSION

May 10, 1935

To the Editor, *The New England Journal of Medicine*,

Sir

May I state briefly that the intrusive publicity involving the first of our recent cases of diaphragmatic hernia has been as disquieting as it has been regrettable and burdensome to me and all other members of our hospital staff.

The little patient was referred to our hospital in Fall River, as is the common custom of practice, by physicians of the highest standing in Omaha, Nebraska. From numerous publications which have appeared in medical journals, these physicians were aware of my interest in the subject of diaphragmatic hernia.

Funds for transporting the mother and child were sought through the medium of the press. When brought into the limelight unavoidably, this little patient, with unusual personal charm, captivated the public with a sympathy and solicitude that gave the publicity a momentum which has not found its limit.

Ten days after her admission to our hospital, I returned from the South to find myself confronted with a problem as perplexing as any one of us has ever been called upon to face. The outcome of the case in itself from any point of view was highly problematical. The press correspondents were numerous, ardent and eager. They manifested some

evidence of becoming rapacious. They claimed title to news and would not be unslaked.

A policy of treating newspaper men as gentlemen seemed worthy of a trial. We followed this line of action with whatever restriction we could exercise. I may state parenthetically that, with only an occasional exception, the reporters conducted themselves as ladies and gentlemen.

The stage was so set that had they been so inclined, they could have converted the scene into a jubilee, the hospital into a shrine and the doctors into mountebanks.

We realized that the traditional principles of the Massachusetts Medical Society warned practitioners to keep their personal and professional activities out of the lay press as much as possible. However, the circumstances which confronted us in this case were such that a policy of direction, control and restraint in apportioning news which seemed autocratic to us, appeared unharnessed to many members of the profession looking on from the outside.

This letter is intended to reaffirm our faith in the high standards of ethics set forth by our State Society and deplore the fact that our best efforts were not good enough to stem the tide of publicity in this case.

Sincerely yours,

PHILMON E. TRUESDALE.

151 Rock Street,
Fall River, Mass.

THE VIEWS OF THE COMMITTEE ON ETHICS AND DISCIPLINE OF THE MASSACHUSETTS MEDICAL SOCIETY

May 16, 1935

To the Editor, *The New England Journal of Medicine*,

Sir

The members of the Committee on Ethics and Discipline of the Massachusetts Medical Society are glad that you submitted to them before publication the letter from Dr. Truesdale of Fall River, dated May 10, 1935, because it gives them an opportunity to state their views and to try to do justice to all concerned, in connection with what the medical profession regards as the unfortunate publicity in the lay press of an operation for diaphragmatic hernia performed by Dr. Truesdale. The Committee has examined all of the correspondence of Dr. Truesdale relating to the case, has listened to and questioned Dr. Truesdale at a conference, called at his request in order that he might obtain advice from the Committee and from members of the Committee on Public Relations, has followed the publicity in local newspapers and periodicals, and has had the advantage of reading scores of clippings and letters from various sources. Without a study of the facts, thus gained, it is impossible, in our opinion, to understand the situation and to assess praise or blame.

The patient in question was referred by reputable

physicians in Omaha to Dr. Truesdale as one who devoted special study to the problem of diaphragmatic hernia. An Omaha newspaper sensing the news value of the case exploited it and asked for subscriptions to defray the patient's expenses. A local business magnate responded nobly. Here was an impressive and striking situation—philanthropy, science and art uniting to help an appealing little sufferer through the agency of a physician who generously offered his services gratis, as every decent physician has done since time immemorial. The newspapers of the country made the most of it and purveyed to the highly emotional idealizing sensation-loving and sometimes hysterical American public the mental pabulum which it loves.

When Dr. Truesdale returned from a vacation he found his clinic beset with a corps of high pressure publicity men scarcely equalled in number and efficiency by that in attendance at the country's most notorious criminal trial and a situation far beyond his control. A quasi-official endorsement of the publicity was afforded by the assignment by the New York Academy of Medicine of its press liaison officer to report the operation for the Associated Press. Dr. Truesdale recognized the obligation to preserve a decent professional reserve and at the same time avoid alienating the press whose good offices our profession has had countless occasions to acknowledge with gratitude, and creating an appearance of indifference to whatever may be the just rights of the public for information on medical matters. He did what he could and what after all is most important though harassed and badgered by these problems, he gallantly carried through to a successful conclusion the critical operation on his patient.

It is possible—indeed it is certain that if Dr. Truesdale could have foreseen what was to happen if he could have made the representatives of the Press understand from the outset that diaphragmatic hernia is a well understood and not uncommon condition which is operated on as occasion arises, successfully by surgeons in scores of medical centres throughout the country if he had been prepared to confront one of the most trying situations of its kind ever faced by a physician in this country he might have been able to limit the publicity which has been deprecated by most members of the medical profession. Perhaps his zeal in trying to turn an unfortunate incident to public advantage by using it to educate the public to an understanding of the essential rôle played by animal experimentation in the alleviation of human ills, has led to a regrettable prolongation of the publicity. But the point is that Dr. Truesdale in his frank letter to the *Journal* has expressed without reserve his regret that he could not do the seemingly impossible, and has affirmed in no uncertain manner his belief in and adherence to the principles of professional conduct insisted on by the Massachusetts Medical Society.

Yours very truly

DAVID CHEEVER, Chairman,

COMMITTEE ON ETHICS AND DISCIPLINE.

NOTICE

UNITED STATES CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission has announced open competitive examinations as follows:

Protozoologists

Applications for the positions of protozoologist and associate and assistant protozoologists U. S. Public Health Service Treasury Department must be on file with the U. S. Civil Service Commission Washington D. C., not later than June 17 1935.

Full information may be obtained from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city which has a post office of the first or the second class or from the United States Civil Service Commission Washington D. C.

REPORTS AND NOTICES OF MEETINGS

MASSACHUSETTS TUBERCULOSIS LEAGUE

ANNUAL MEETING

April 29 1935

With a group of representatives of affiliated organizations throughout the State, larger than any in recent years the twenty-second Annual Meeting of the Massachusetts Tuberculosis League was held at the University Club Boston, on Monday April 29.

Dr. Frederick T. Lord, President of the League, was in the Chair. He presented his annual Presidential Address which appears on page 867 of this issue of the *Journal*. Reports of the year's work were made by Frank Hjerman, Executive Secretary and Miss Jean V. Latimer, Educational Secretary. The report of Arthur Drinkwater, Treasurer, showed a sound financial condition of the organization.

At the Corporation Meeting of the League, Dr. Nahum R. Pillsbury, Superintendent of Norfolk County Hospital and Rev. Walter F. Greenman, of West Newton, were reflected to the Executive Committee for a three-year term. Dr. James F. Brewer, Superintendent of Sassaquin Sanatorium, was Chairman of the Nominating Committee.

Following the morning session a luncheon meeting was held at which Dr. Henry D. Chadwick, State Commissioner of Public Health, Dr. Alton S. Pope, Director of the Division of Tuberculosis of the State Department of Health and Dr. Nahum R. Pillsbury were the speakers. Dr. Chadwick spoke on "Current Problems in Tuberculosis in Massachusetts." Dr. Pope spoke on "The Continuation of the Work of the Chadwick Clinics Under Local Auspices." Dr. Pillsbury gave an illustrated talk on Collapse Therapy in Tuberculosis.

Resolutions on the passing of Dr. George H. Bigelow were unanimously adopted.

The following Officers and Directors were elected

President, Dr Frederick T Lord, Boston, Honorary Vice Presidents, Dr Henry D Chadwick, Boston, Rt. Rev William Lawrence, D D, Boston, Rabbi Harry Levi, Brookline, William Cardinal O'Connell, Brighton, Vice President, Dr Francis P Denny, Brookline, Treasurer, Mr Arthur Drinkwater, Cambridge, Assistant Treasurer, Mr Romney Spring, Boston, Clerk of the Corporation, Frank Kiernan, Belmont.

Directors at-large Mr Frederic Bailey, North Scituate, Dr Frank H Baehr, Springfield, Dr Walter P Bowers, Clinton, Dr Robert P Carpenter, North Adams, Dr C Benjamin Fuller, Waltham, Mrs Leslie B Cutler, Charles River, Rev Walter F Greenman, West Newton, Mrs John D Henry, Boston, Dr William O Hewitt, Attleboro, Prof. Murray P Horwood, Newton Center, Dr Roger I Lee, Boston, Dr Carl C MacCorison, North Reading, Dr Richard P MacKnight, New Bedford, Mr David Moxon, Framingham, Mr Raymond S Patterson, Newton, Dr Alton S Pope, Newtonville, Dr Sumner H Remick, Waltham, Mr John Ritchie, Malden, Mr Thornton K Ware, Fitchburg, Miss Margaret Weir, Beverly, Dr Earle C Willoughby, North Reading

Representative Directors Mrs Edna Johnson, Pocasset, Dr Floyd R Smith, Pittsfield, Dr John B Hawes, 2nd, Boston, Dr Cleaveland Floyd, Boston, Mr Alexander Wheeler, Boston, Miss Sarah A. Hyams, Jamaica Plain, Dr Garnet P Smith, Attleboro, Dr Helen W Evarts, Cambridge, Mrs J A. Walker, Chelsea, Dr Olin S Pettingill, Middleton, Mrs H G Hamann, Swampscott, Mrs A L Johnson, Orange, Mr Clifton H Hobson, Palmer, Mr Preston C Pond, Chicopee, Hon. Clarence E Hodgkins, Northampton, Dr Frederick R. Radcliffe, Haverhill, Mrs Frances B Mowry, Lawrence, Mr Charles H Hobson, Lowell, Dr Samuel Hoberman, Malden, Mr Richard C Maloney, Nantucket, Dr James F Brewer, New Bedford, Mrs Allan Shepard, Newburyport, Dr George F H Bowers, Newton Highlands, Dr Nahum R. Pillsbury, South Braintree, Mrs William C Rogers, Cohasset, Dr James Q Walls, Ayer, Mrs B Milo Burke, Brockton, Dr J Frank Donaldson, Salem, Mrs Robert Murphy, Arlington, Mr Edward P Furber, Boston, Rev J F McGillicuddy, North Brookfield, Dr Gardner N Cobb, Worcester, and Dr Arthur K Stone, Framingham

ANNUAL REPORT OF EXECUTIVE SECRETARY*

APRIL, 1934, TO APRIL, 1935

BY FRANK KIERNAN, A B

Once again as we gather for our twenty-second Annual Meeting a cloud of sorrow hangs over us at the passing of five of our friends and co-workers. The necrology of the year includes Mrs E Frank Guild of Chelsea, Mrs Esther E Moore of Worcester, Dr George H Bigelow of Milton, Dr Harry

S Wagner of Pocasset and Mr Walter S Barr of West Springfield

All of these were for many years active in the fight against tuberculosis. We deeply mourn their passing. We pay tribute to their service in this cause. A memorial service for Dr Bigelow will be held at Memorial Church, Harvard University, Cambridge, on Sunday, May 12, at four o'clock. Dr Richard Cabot will deliver the eulogy. I am authorized by those in charge of the meeting to extend an invitation to the members of the Massachusetts Tuberculosis League and its Affiliated Organizations to attend.

In presenting our last Annual Report your Secretary cited the Study of Tuberculosis in Cambridge made under the auspices of this League as a classic example of the usefulness of a volunteer health organization. It seems appropriate here to state that the major recommendation of that report, namely, the union of the Cambridge Sanatorium with Middlesex County Sanatorium at Waltham, is in a fair way to be accomplished. Legislation now pending in the General Court would permit such a union. There is some indication that the question of policy may be referred in a referendum to the people of the city. If that occurs it will involve an intensive educational campaign in which the League will be glad to assist the Cambridge Tuberculosis and Health Association, with a view to securing affirmative action by the voters of the city.

Other bills pending in the Legislature in which we have been interested will be referred to later in this report.

ORGANIZATION MATTERS

Since last year the Lynn Tuberculosis Association at our recommendation employed a full time Executive Secretary. She is coöperating most satisfactorily with the Lynn Health Department and other health agencies in that city.

The Barnstable County Public Health Association has also employed a part-time Executive Secretary, a former school teacher, who will act as Executive and Director of the Summer Health Camp during July and August.

In Haverhill, where the newly appointed Secretary had taken office just previous to our last meeting, the program has developed with most satisfactory responses on the part of the public and the health agencies of the city. It was recently my privilege to meet with representatives of all the welfare organizations of Haverhill and to outline the possibilities of greater usefulness through a council of health and welfare organizations. It is gratifying to report that among the most active participants in the proposed council is the Agent of the Municipal Board of Health.

The vacancy in Hampden County created by the death of Frederic Edwards was filled after serious consideration of candidates by the appointment of Mr Henry P Coor, formerly of the staff of the Springfield Young Men's Christian Association. Mr Coor has taken up his work with enthusiasm, high

*Presented at the Annual Meeting of the Massachusetts Tuberculosis League at Boston April 29 1935

intelligence and great zeal. He has brought about some important changes at the Summer Health Camp of the organization and is continuing and expanding the work of Mr. Edwards in a most satisfactory manner.

The vacancy in the Southern Worcester County Health Association created by the resignation of Miss Christine B. Higgins was filled by the appointment of Mr. Arthur J. Strawson, formerly and for many years Director of Field Service of the National Tuberculosis Association. Like the other new appointees Mr. Strawson entered upon his duties with enthusiasm and that skill which we would expect of an experienced member of the National Staff. At the recent Annual Meeting of the Southern Worcester County Health Association, the President, Mr. Alfred Rankin, reported great satisfaction with the progress of the Association in the past year.

Both Mr. Coor of Hampden County and Mr. Strawson have assumed direct responsibility for the operation of the large Summer Health Camps of these organizations.

Through the courtesy of the Managing Director of the National Tuberculosis Association we were fortunate to have the services of Mr. Philip P. Jacobs of the National Staff for the period of January 7 to February 9 of this year. During that time twenty-one of our twenty-eight affiliated organizations were visited and a review of the basic plan of organization, the financial picture, programs of work and relationships with other health and welfare organizations was made. Before he left the State Mr. Jacobs filed with us reports on the twenty-one organizations with recommendations for improvement of the set up and of their programs. These reports have been duly transmitted and are being studied by the Board of Directors and Officers of our affiliated groups.

Also as part of the service of Mr. Jacobs a Tuberculosis Institute was carried on from February 4 to 9. The popularity of the Institute exceeded all expectations. Conceived originally as a postgraduate course for secretaries who had been in the field for a number of years, the demand on the part of others from public and private organizations compelled us to seek larger quarters in order to accommodate all those desiring to participate. Special speakers at the Institute were Dr. Henry D. Chadwick, Dr. John B. Hawes, 2nd, Dr. Alton S. Pope, Dr. Nahum R. Pillsbury and Professor C. E. Turner.

LEGISLATION

By personal appearances at hearings by communications to Senators and Representatives, and through the coöperation of our affiliated organizations we have endeavored to promote the passage of the following Bills:

House Bill 1485 which would authorize the Trustees of Middlesex County Sanatorium to enlarge that Institution by 160 beds.

House Bill 1589 This bill is complementary

to House Bill 1485 in that it would permit the Trustees of Middlesex County Sanatorium to take over the Cambridge Sanatorium and conduct the official program in that city in the control of tuberculosis. A well thought out plan for utilizing the existing building in Cambridge has been made and if the legislation is approved we hope by the time of our next Annual Meeting to speak of the enlarged physical plant and extended service of Middlesex County Sanatorium to include all the official tuberculosis activities in that city.

Senate Bill 213 This bill would authorize the establishment of an extension to Westfield State Sanatorium by the erection of a building to care for 150 adult patients. This would adequately provide for the four Western Counties of the State.

House Bill 756 We also appeared at the request of the Legislative Committee of the Massachusetts Medical Society to advocate improvement of the standards of medical education in Massachusetts. The Executive Committee of the League also voted endorsement of this bill which was duly transmitted to the Legislative Committee on Education.

SUMMER HEALTH CAMPS

By direction of the Executive Committee of the League Mr. Raymond Patterson and your Executive Secretary made a tour of inspection of all the Summer Health Camps with which we are officially connected. We made a fairly detailed examination of the premises, discussed the programs, interviewed the personnel and made certain recommendations. The report submitted by Mr. Patterson and me was approved by the Executive Committee of the League and duly transmitted to our affiliated bodies. On March 4 a special Health Camp Meeting was held at Worcester with our State Commissioner of Public Health, Dr. Henry D. Chadwick, as the principal speaker. There was a detailed discussion of camp problems in which all of the secretaries and camp workers participated. It is gratifying to report that Dr. Chadwick in his address stated that the Summer Health Camp has a distinct place in the program for the prevention of tuberculosis. He gave us all counsel as to ways of improving the camps so as to make them more nearly conform to the ideal of a tuberculosis prevention measure.

Also at this meeting there were presented Standards for Summer Health Camps which were drawn up by a Special Committee of the Executive Committee and approved by the Executive Committee. These Standards will no doubt be of interest to the many people at this meeting who are interested in Summer Health Camps. They are as follows:

Selection of Children

The standards for selection of children prepared by Dr. Henry D. Chadwick and modified and approved by the Executive Committee of the League to continue in force. The Committee

desires to point out the advantage of using the facilities of the State and local tuberculosis sanatoria for the examinations including von Pirquet and x-ray of the children recommended by local physicians, community nurses and school nurses

Other Requirements for Admission

- (a) Children should be vaccinated against smallpox and immunized against diphtheria
- (b) Children should not be admitted to a camp who have remediable physical defects which would prevent their participating in the regular camp activities and profiting by the camp regimen.
- (c) Children should be examined by a physician on the opening day of the camp, preferably at the point from which they proceeded to the camp

Personnel

- (a) There should be a minimum of one counselor to each ten children.
- (b) There should be a registered nurse always on the camp premises
- (c) There should be either a resident physician or arrangements should be made with a nearby physician for a daily visit. If it is impossible to secure a graduate physician, a medical student who has completed three years' work may be employed providing arrangements are made for the services of a nearby physician in the event of illness

Duration of Camp

Camps should be operated on the basis of one group of children for a period of not less than eight weeks. Where this plan cannot be carried out for 1935 in those camps now caring for two or three groups in shorter periods plans should be made, if possible, for one group for eight weeks in 1936

Water Supply

The water supply of the camps should be examined at least once each year. The State Department of Public Health will make these examinations on request.

Sewage and Water Disposal

The utmost care should be exercised in seeing that the sewage disposal plant is working effectively. Care should be exercised that lakes or ponds used for swimming are not contaminated by sewage disposal. Care should be exercised also that nuisance is not created about the camp

Nutrition

- (a) If possible a trained dietitian should be in charge of the planning and preparation of the camp meals. In the event that this is not feasible the assistance of the dietitians of the State Department of Public Health or the Massachusetts Agricultural College should be utilized.

- (b) Only pasteurized milk should be used at the camps

Rest in the Camp Routine

- (a) The camp routine should include quiet periods before lunch and supper and a rest period after lunch.
- (b) A minimum of eleven hours sleep period is recommended for the night rest.
- (c) Camps should be so arranged as to provide a single bed for each child

Recreation

- (a) Quiet games rather than competitive games and activities requiring strenuous exertion such as baseball should be emphasized.
- (b) Swimming periods should not exceed twenty minutes morning and afternoon. Swimming periods should be followed by rest periods

Isolation

Temperatures should be taken daily and any child showing abnormal temperature or other manifestation of illness should be immediately isolated in proper quarters and placed under medical care

First Aid

- (a) A fully equipped First Aid Kit should be available at all times
- (b) Children should be instructed to report immediately to the Camp Nurse any cuts, abrasions or other injuries

You will hear from our Educational Secretary a detailed report of the progress of that Department during the year. One piece of health education work with which your Executive Secretary was connected, by request of the local Association, was a series of health education meetings before the Parent Teacher Associations in the City of Cambridge. Sixteen meetings were held in public schools and attended not only by parents but by masters and teachers. The interest of the people at these meetings was most impressive and many questions were asked by the members of the audience. A representative of the Cambridge Tuberculosis and Health Association attended each of the meetings and many hundreds of leaflets descriptive of the old and new methods of caring for tuberculosis were distributed.

Your Secretary was invited to give the graduation address at the exercises of the graduating class for nurses at Framingham Hospital. He was also invited to speak to the nurses in training at Middlesex and Essex County Sanatoria. Talks were also given before Service Clubs, groups of nurses and many of the annual meetings of our affiliated organizations.

Coöperation among neighboring tuberculosis associations has been fostered. In several parts of the State joint projects have been entered upon. A joint meeting of the Northern and Southern Worcester County Health Associations was held at the camp of the latter organization, with your Secre-

tary as presiding officer Dr Edson W Glidden, Superintendent of Boylston Sanatorium, Mr Thornton K. Ware, President of the Northern Worcester County Health Association, and Mr Alfred Rankin President of the Southern Worcester County Health Association were among the speakers

In these counties both associations have given an example to the rest of the State in their coöperation with the County Sanatorium in the new arrangement for the continuation of the Chadwick Clinics The Executive Secretaries and Public Health Nurses of both associations have done promotion work in advance of the Clinics have assisted at the time of the Clinics and are carrying on the follow-up in conjunction with the local Health Departments This is a piece of work which has been carried on for several years in Hampden County having been inaugurated when Dr Henry D Chadwick was Superintendent of Westfield State Sanatorium It has continued there with constant success through the years

Your Executive Secretary has continued as Secretary and Treasurer of the Massachusetts Central Health Council and in that capacity has assisted in the promotion of the project for a study of the revision of the public health laws and practices in the Commonwealth Legislation is now pending to authorize the Governor to appoint a Commission of twelve of which the State Commissioner of Public Health and the State Commissioner of Mental Diseases will be two to supervise the Study A grant of \$10,000 has been secured from a Foundation to finance the undertaking Through the courtesy of Dr Kendall Emerson while he was Executive Secretary of the American Public Health Association arrangements were made for the services of Dr Carl E. Buck to do the field work in connection with this study during the summer This undertaking we regard as of paramount importance not only to the tuberculosis campaign but to all public health undertakings in the State The study will have the very hearty coöperation of the staff of the State Department of Public Health and the volunteer organizations We expect to give considerable time and assistance to this project during the summer and fall

In 1934 the League made a grant of funds toward a study of tuberculosis in diabetic children under the direction of Dr Elliott P Joslin of Boston The incidence of tuberculosis among diabetics is apparently increasing. In 1935 Dr Joslin again came to the Executive Committee this time suggesting a study of diabetes in Boston from the records of the Department of Health and private physicians in 1934 and 1935 This time the League was not asked to appropriate funds these being provided from a private source. The League was asked to appoint a committee composed in part of members of the Executive Committee and in part of others to sponsor the study The study is now in progress and is being carried on by Dr George Lynch on a part time basis It is expected that by the end of this

year a report on this will be available for consideration of the committee with respect to a program for 1936 and subsequent years.

In New York City under a grant for a three-year period the New York Tuberculosis and Health Association the Health Department, and the Academy of Medicine are jointly working out a program to cope with the diabetes problem in that city

Assistance has been rendered during the year through Miss Dinamore of our Staff to our Associations and the Health Departments of Lowell Holyoke Haverhill and Arlington, in the study of reported cases and deaths for the period 1929 to 1934 In Lowell and Holyoke the studies have been completed and reports with recommendations have been turned over to the Health Departments In the other cities the studies are still under way In each case a spot map has been prepared showing the reported cases and deaths for the period indicated In connection with this project, we have had the assistance of Dr Alton S Pope and his staff which we gratefully acknowledge

SEAL SALE

In anticipation of the 1934 Seal Sale district conferences for our local Associations were held with representatives of the National Tuberculosis Association's Seal Sale Department, at Greenfield Haverhill Springfield and Boston. There were also some meetings with local secretaries and with groups of volunteer chairmen

In conjunction with Dr John B Hawes 2nd of the Boston Tuberculosis Association we secured permission from the Mayor of Boston for the erection of a replica of Dr Trudeau's Little Red on Boston Common. With appropriate exercises the Little Red was dedicated on Thanksgiving Day and remained as the headquarters of the sale in this city until Christmas

The final returns on the Seal Sale are not yet all reported by the local associations but enough final returns are in to enable us to state that the sale will exceed that of the previous year by something over \$4,000 In view of the economic situation I think we have reason to feel gratified that we have been able to show a gain even though it is a slight one

The problems of the year we are now entering upon with this Annual Meeting as I see them are (1) extension of the teamwork with the State County and local sanatoria in the continuation of the childhood tuberculosis program (2) interesting more physicians and a larger number of representative laymen as Dr Jacobs recommended everywhere in the State in the programs of our Association, and (3) a revival of the crusading spirit as we go into the last lap in the race against tuberculosis. Our contact with the National Tuberculosis Association gives us a wide latitude of activities There has been no attempt at standardization. The problems of Berkshire and the problems of Barnstable are quite dissimilar The motivating principle however is the same and the technique which will be adopted will

be the best suited to the problems arising out of the local situation.

If the tuberculosis mortality rate is to be kept declining, it will be only through the combined efforts with the public health authorities and what Dr Bigelow used to describe so aptly as the persistent effort to develop an informed public opinion

ANNUAL REPORT OF THE EDUCATIONAL SECRETARY—APRIL 1935*

BY JEAN V LATIMER, B.S., A.M.

Possibly the most outstanding contribution during the past year of the League to the field of health education in the high schools has been the four institutes which we have conducted in affiliation with our local associations. The first was held in Winchester last May in coöperation with the Southern Middlesex Health Association. In October two similar institutes were conducted in Brockton, in coöperation with the Norfolk and Plymouth County Associations, and in Salem with the assistance of the Essex County Health Association and the local associations of Lowell, Haverhill, Salem, Lawrence and Newburyport.

In November an institute was held in Springfield for the Connecticut Valley, in coöperation with the Hampden, Hampshire and Franklin County Associations, and the local association of Holyoke. Dr C-E-A Winslow of Yale was the out-of-state speaker at the Winchester institute and at the meetings last fall we were fortunate to be able to secure Dr Jesse Feiring Williams of Columbia University for all three meetings.

Also, in anticipation, I should like to say that next month our fifth institute is to be held in the State Teachers College at Fitchburg, in affiliation with the Northern and Southern Worcester and Franklin County Health Association. Dr F W Maroney of Teachers College, Columbia University, is to be the out of state guest speaker.

At these institutes, in addition to a consideration of the health teaching aspects of a school health education program, the plan which is now in operation for the reorganization of the Chadwick Clinics in relationship to the high schools, was given major consideration. Our own State Commissioner of Public Health, Dr Henry D Chadwick, will present this important subject at the fall institutes and at the coming one in Fitchburg. The tuberculin testing and x-raying of the seventh, ninth and eleventh grades is an important step for the detecting of tuberculosis in the high school age. The great task ahead is to have such examinations included as a part of the regular school medical examinations. This involves an improvement of the entire school medical service. However, with the splendid interest of the school administrators and with the technical assistance of the county sanatoria staff and local tuberculosis associations, this now is being

done with increasing efficiency and satisfactory results.

In this connection another outstanding piece of health education done this winter by a local tuberculosis association has been that of the Southern Worcester County Health Association. The executive secretary, Mr Arthur J Strawson, has developed a cooperative plan of work with the county sanatorium for advancing the operation of the Chadwick Clinics in the high schools of the county. By invitation extended through Mr Strawson, the Educational Secretary of the League has made repeated visits to this county, speaking in school assemblies, assisting in the organization of faculty and student health councils. Records have been kept as to the groups reached through the educational efforts.

We will see if in another year when the Chadwick Clinics revisit each school the number of consents for the tuberculin test is higher, also, what the results are in the community at large, toward an understanding of the present tuberculosis problem.

We are especially gratified that there is a tendency on the part of our local associations to take groups of adolescent girls in their summer health camps. In addition to the camps which last year included the older age-level, the plan of the Northern Worcester local committee for the coming year is to use the two months of camp stay solely for such girls, as reported by the Chadwick Clinics in need of such protective care.

At present the Educational Secretary of the League in cooperation with the Barnstable County Health Association is conducting a series of four lectures each week on health education for elementary and secondary school teachers in the following places: Falmouth, Orleans, Bourne, Hyannis and Sandwich. This lecture series will run through each week until late May.

For the past few years our National Association has been interested in developing a more adequate type of social and vocational rehabilitation work among the patients in tuberculosis sanatoria. During the past year the Educational Secretary has assisted the National and your Executive Secretary in conducting an experiment along this line at the Middlesex County Sanatorium in Waltham. At the invitation of Dr Remick, Dr Beulah Burhoe of the National staff and her assistant spent a week last summer at this institution, giving aptitude tests and educational guidance to a selected number of patients. This was followed in the fall by the employment by the League of Dr John C Flanagan of the staff of the Harvard Graduate School of Education as part time educational counselor.

Our efforts have been along the following lines: Psychological tests of patients to ascertain their native equipment and educational background, in individual educational counseling with patients in order to direct them to a furtherance of education which may in turn lead to greater vocational fitness and personal happiness, and directing individual extension and correspondence courses. During the

*Presented at the Annual Meeting of the Massachusetts Tuberculosis League at Boston April 29 1935

cent of these patients complain of this disturbance. Usually it is of a revolving type. The patient showed hyperactive knee jerks, a markedly sustained ankle clonus, a positive Babinski, and the upper extremities were less active than the lower. She had no intention tremor. This condition had been progressing for nine years and with the exception of a remission of six months had been getting worse gradually. There had been incontinence of urine at one time, and she had been emotionally unstable for five years with an unusual optimism and unexpected bursts of laughter. Recently she had developed diplopia and recurring dimness of vision.

The second patient was a twenty-seven year old woman who entered with decreased lower extremity reflexes. Her spinal fluid showed a type II gold sol curve, twelve lymphocytes, and a total protein of forty. This patient also had multiple sclerosis.

A fifty-nine year old man entered with a complaint of numbness of the legs and unsteady gait for one year. His urinary stream was thin and he was troubled with frequency and difficulty in starting, the flow as well as dribbling and nocturia. He had considerable difficulty in walking in the dark and had been on liver therapy for three months without improvement. His spinal fluid was normal. The epigastric and cremasteric reflexes were absent. There was a positive Babinski on the right and the knee and ankle jerks were hyperactive. The Romberg sign was positive. This was an upper motor neurone disturbance. He has a posterolateral disease of unknown etiology. His blood picture is normal and, therefore, it is not due to pernicious anemia. Further study may show a cord tumor as the cause.

The fourth patient was a man who twenty years ago contracted lues although there was no history of a chancre. He had had frequent frontal headaches and had become irritable and nervous. In the past two years he had been treated for lues with mercury bismuth and arsenamine, but his lumbar puncture continued to show evidence of central nervous system lues and he was therefore given an injection of malarial parasites which some ten days later started a typical fever occurring every other day.

The fifth patient was a forty-two year old man with polycythemia vera. He presented a striking red cyanosis. Doctor Christian stressed that this typical color may be lacking. His red count was seven and a half million with about twenty-five thousand white blood cells. He had had severe headaches, attacks of vertigo and an anasthesia of the jaw and tip of the tongue. In an earlier attack of central nervous system disturbance a brain tumor had been suspected, but the ventricles had been negative. At the time of the earlier attack polycythemia was not found. Such central nervous system symptoms are a common complaint in this condition. On the day of entry he had collapsed on the street, probably as a result of a cerebral accident.

A very marked case of acute gout with large red, inflamed tophi on the fingers, elbows and toes was shown.

THE CERTIFIED MILK PRODUCERS ASSOCIATION OF AMERICA

The Certified Milk Producers Association of America and the American Association of Medical Milk Commissions will hold a joint meeting in Atlantic City, June 10 and 11, 1935.

The subjects discussed will cover the many phases of dealing with milk in its relation to health and disease, as well as regulations covering the production and distribution of this food.

A long list of speakers will participate in the discussions.

Further information may be obtained on application to Dr. Harris Monk, 360 Park Place, Brooklyn, New York.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, MAY 27, 1935

Tuesday, May 28—

12:30-4 P.M. Ward Visit, Massachusetts Eye and Ear Infirmary.

14:5 P.M. Seminar, Pediatric Laboratory, Massachusetts General Hospital.

Saturday, June 1—

*10:12 Staff rounds at the Peter Bent Brigham Hospital. Open to practicing physicians.

Open to the medical profession.

*Open to Fellows of the Massachusetts Medical Society.

May 27—New England Heart Association will meet at the Rhode Island Hospital in Providence at 8:15 P.M. For details address Dr. James M. Faulkner, Secretary, 284 Beacon Street, Boston.

June 3—Harvard Medical Alumni Association will meet in Parlor D, Hotel Statler, Boston at 1:30 P.M.

June 3—Massachusetts Alumni of University of Maryland Medical School, Baltimore Medical College and College of Physicians and Surgeons, Baltimore. See page 930.

June 3—Massachusetts Medical-Legal Society. See page 930.

June 3—Tufts Medical School Alumni Association will meet in the President's Room at the University Club, Boston at 1:30 P.M.

June 10—American Canadian Medical Golfers' Play at Atlantic City. For details write Bill Burns, Executive Secretary, 4121 Woodward Avenue, Detroit.

June 10 and 11—American Proctologic Society will meet at the Marlborough-Blenheim, Atlantic City. For information address Frank G. Runyon, 1361 Perkiomen Avenue, Reading, Pa.

June 10 and 11—The Certified Milk Producers Association of America. See notice above.

June 11—American Heart Association. The Eleventh Scientific Session will be held from 9:30 A.M. to 5:30 P.M. at the Hotel Claridge, Atlantic City, N. J. The program will be devoted to various subjects on cardiovascular disease. Gertrude P. Wood, Office Secretary, 50 West 60th Street, New York, N. Y.

June 11—American Neologian Society will meet at the Hotel Claridge, Atlantic City, New Jersey.

June 12 and 13—Academy of Physical Medicine. Annual Meeting will be held at the Claridge Hotel, Atlantic City, N. J. For further details address Arthur H. Ring, M.D., Secretary-Treasurer, Arlington, Mass.

June 17-19—The Medical Library Association will meet in Rochester, New York. For information address Miss Frances N. A. Whitman, Librarian, Harvard University Schools of Medicine and Public Health, Boston, Mass.

June 17 to 21—Convention of the Catholic Hospital Association will be held at Creighton University, Omaha, Nebraska. For information address the Most Reverend Joseph Francis Rummel, D.D., Bishop of Omaha.

LECTURE ON APPENDICITIS

Gunnar Nystrom, Professor of Surgery, University of Upsala, Sweden, discussed "Swedish Experiences in Combating Appendicitis" at the Harvard Medical School on April 23. This was under the auspices of Alpha Omega Alpha. Doctor Cutler introduced Doctor Nystrom.

General surgeons are apt to regard appendicitis as a closed medical chapter, but the mortality in this condition has shown a tendency within recent years to rise. This has been true in Sweden and also throughout the world. The first appendectomy done in Sweden was in 1888, and following this much interest arose and also arguments between internists and surgeons concerning the indications for operation. The mortality from 1901 to 1905 at Upsala was about nine per cent, but since that time the mortality rate has been considerably less partly due to the more benign cases accepted for operation, and the earlier period in which the cases reach the operating table.

In Sweden x-ray examination is used to a considerable extent in the diagnosing of all acute abdominal cases where the diagnosis is uncertain. By means of a fluoroscopic examination with careful palpation the differential diagnosis of many abdominal conditions is made easier. In the routine abdominal examination the Swedish surgeon is taught to look for the appearance of pain over the site of the appendix not only with direct pressure but also when pressure is made in the left lower quadrant, again with the release of pressure in the left lower quadrant, and finally with deep breathing, the contraction of the thoracic muscles, or contraction of the abdominal muscles. Direct pressure over the appendix is not caused by disease in the abdominal wall. The necessity of immediate operation when the symptoms are acute was stressed, but after the symptoms have been severe for forty-eight hours there has been considerable disagreement as to what the treatment should be. Many have been conservative, and Doctor Nystrom said that the Ochsner treatment has gained some ground in England. It has been felt in some of the Nordic countries that unless the surgeon is very experienced he is apt to spread the infection. Others believe that the abscess should be drained and the appendix removed only if readily accessible. In Sweden it has been felt that the surgeon should remove the source of the infection as soon as possible in order to prevent further spread and such complications as thrombosis of the portal vein. In mild and moderate cases of peritonitis the mortality of the operation is very low, about one per cent, but in severe peritonitis it is about twenty-four per cent. Doctor Nystrom stressed the danger of thinking of appendicitis in terms of stages, and of letting the general medical man adopt the opinion that the patient should be kept home if forty-eight hours have elapsed since the onset of symptoms because such practice would increase the mortality.

The advisability of a secondary operation after

an acute peritonitis where the appendix has not been removed has been the subject of some dispute. If no operation is done, the condition will recur in fifty per cent of cases, and in more than half of these this will happen within six months. It is impossible to tell from the severity of the preceding attack what the character of the later attack will be. It may be said, however, that the frequency of recurrences is in inverse proportion to the severity of previous attacks. In a reliable patient the second operation may wait until symptoms of a recurrence present themselves, provided that the patient is carefully instructed to return when the first symptoms appear.

With a probable first mild attack of appendicitis, operation should be advised, but if the patient wishes to wait until there is a return of symptoms it is probably permissible to let him do so. If he is going away on a journey, however, where the availability of proper surgical treatment may be questionable, it is advisable to have the appendix removed before he goes. If the symptoms of an attack seem to progress, operation is necessary. If the symptoms have continued for three or four days with signs of a mild peritonitis which apparently are regressing the patient should be treated conservatively. Chronic cases of appendicitis where there has been a careful differential diagnosis should have surgical treatment, and in fifty per cent of these cases the common complaints of dyspepsia and obstipation will disappear after operation.

The mortality rate has gradually increased during the past ten years in spite of better education and a higher standard of living. This has been the universal experience. In Sweden it is felt that this may be only partly apparent since there is an increase in the number of acute cases admitted. It is felt that an increase in morbidity may play a rôle, due to the more expensive diets used since the war. The poorer classes are not so apt to have appendicitis, and statistics in Sweden show that the increase in mortality has been only in those cases occurring during the first decade, and in the age groups after thirty years of age. This is probably due to the fact that an increased number of children and patients beyond the age of thirty are brought into the hospital for diagnosis. There is no suggestion that the disease has increased in malignancy. Inexperienced surgeons should not be allowed to operate on severe cases. There is still much to be learned about appendicitis, and there should be an increased vigilance of doctors, earlier diagnosis, education of the public, and improved technique.

CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

Doctor Christian conducted the Thursday afternoon clinic on March 28. He considered central nervous system disturbances. The first case was that of a thirty-four year old woman with multiple sclerosis. Her chief complaint was dizziness when lying flat. According to Charcot seventy-five per

to reestablish that fact in this present book? As one author aptly stated "There is still no scholarly doctoral thesis entitled *Prolegomena to the Etiology of Jewish Survival*." The Jew will survive. He has long demonstrated his value to the community and needs no compilation of this sort to impress his Christian brethren as to his worthiness.

Papers of Charles V. Chapin, M.D. A Review of Public Health Realities. 250 pp. New York: The Commonwealth Fund, 1934. \$1.50

This book of 250 pages contains a selected collection of Dr. Chapin's addresses before the American Public Health Association and other organizations with a similar purpose. They date from 1902 to 1927.

One to whom Dr. Chapin is only a reputation may unexpectedly find that, while these addresses are instructive, they are of historical interest rather than indicative of prophetic vision. They embody current thought of the time when they were written. In the flush of satisfaction over Major Reed's demonstration of the mosquito transmission of yellow fever, Dr. Chapin no more than anybody else imagined that thirty years later the transmission of yellow fever would still be puzzling investigators and that they would be contracting the disease directly from laboratory mice. Nor did "realities" seem to call for mention of the fact that notwithstanding Major Reed's demonstration the measures employed to prevent the spread of yellow fever by commerce were still the same as experience and clear thinking had previously shown to be effective only simplified in some features in the light of recent discoveries.

Nevertheless, Dr. Chapin has brought forward ideas and has been singularly fortunate in getting others to adopt them. His advocacy of the abandonment of useless fumigation in human habitations was happily timed, but this is not the whole story. Dr. Chapin stimulates others to think for themselves. These addresses show how he does it. His ideas are proffered as the suggestions of a likable man respected by all who have the privilege of knowing him personally. He avoids controversy perhaps no more by what he says and how he says it than by what he leaves unsaid.

In presenting statistical evidence of the failure in certain cities of hospital isolation to decrease the prevalence of diphtheria, scarlet fever, and measles, he does not mention the fact that transportation companies were then controlling the spread of measles among highly susceptible Eastern Europeans in emigrant boarding houses in Europe and on crowded ships with our immigration running over a million a year. Between 1895 and 1900 two hundred cases of measles often arrived on a single ship and the mortality at times was twenty per cent. With bankruptcy from hospital bills as the alternative and otherwise stimulated by our government the shipowners found ways of making a dozen cases on

a ship an unusual occurrence. Dr. Chapin might have said that the shipowners' methods were effective because they assured the hospitalization of cases of measles in the earliest prodromal stage while the conventional municipal practice whose failure he was disclosing was to isolate after eruption had appeared when the case had already done all the infecting of others that it was likely to do.

Dr. Chapin in his addresses points out the evidence of the decreasing practical importance of diphtheria and scarlet fever in our larger centres of population like Providence. He shows that the failure of municipal practice to control these diseases has resulted in the unconscious acquisition in some way of a high percentage of natural immunity to them. He also discusses the probability that there have simultaneously been biological changes in the infective organisms of these diseases and in the human population as well. He truly says referring to General Hancock, sanitation is a local issue, but he avoids the storm of protest which would follow if he had continued and said that the biological adjustment of the indigenous population of cities like Providence or Boston has now reached a stage when if efforts to control diphtheria and scarlet fever were entirely abandoned these diseases would still continue to decrease in practical importance and without any statistical evidence of a tendency to increase in prevalence over a five-year period.

Those who know Dr. Chapin do not have to be told that he had no misconception regarding the relation of public sanitation to public health, but we find in what he said and left unsaid in some of his addresses especially in connection with budget allocations the basis for wrong conclusions capitalized by socially minded women and men in their efforts to find more congenial ways to serve the public officially than by enforcing community sanitation.

It is to be regretted that Dr. Chapin gives opportunity for a remark like some claim that great attention should be given the fly but they have not proved their point, to be taken out of its context and perverted without making any reference to himself to "realities" like the following:

A well-qualified tribunal found that it was flies which practically put *hors de combat* our army of undisciplined recruits with inexperienced incompetent officers by the time that the Spanish war ended by the collapse of Spain's resistance.

Apart from typhoid fever, military commanders have now learned that the disposal of garbage so that it will not serve to propagate flies and the effectual guarding of latrines from them are fundamental essentials in the prevention of military ineffectiveness from other gastro-intestinal infections.

Dr. Chapin might have confined his references to civil life and he might have cited evidence confirmatory of the conclusions of Dr. Miller's notable study for the Rockefeller Foundation to the effect that in New York City the disappearance of stable and of

June 24-28—American Urological Association and Western Branch Society, American Urological Association, will meet at the Palace Hotel, San Francisco, California. For details write Dr. Charles P. Mathé, 450 Sutter Street, San Francisco, California.

June 27-29 Inc.—British National Association for the Prevention of Tuberculosis will be held at Southport, England. Persons desiring further information should write to Miss F. Stickland, Secretary of the Association at Tavistock House North, Tavistock Square, London, W. C. 1, England.

July 1-23—University of Freiburg 1 Br. will hold a vacation course of the medical faculty. For information address Akademische Auslandsstelle der Universität Freiburg 1 Br., Schwimmbadstrasse 8, Germany.

July 22-27—Seventh International Congress on Industrial Accidents and Diseases, Brussels, Belgium. The American Committee of the Congress is under the chairmanship of Dr. Fred H. Albee, New York, for the Section on Accidents, and that of Dr. Emery R. Hayhurst, Columbus, Ohio, for Industrial Diseases. The American delegation to the Congress will sail from New York on July 8 and visit London, Amsterdam, The Hague and Paris and, optionally, Budapest. Physicians interested in the Congress or in the medical tour in conjunction with it, may address the Secretary, Dr. Richard Kovacs, 1100 Park Avenue, New York City.

October 7-10—American Public Health Association will meet in Milwaukee, Wisconsin. For information address the American Public Health Association, 50 West 50th Street, New York City.

October 21-November 2—1935 Graduate Fortnight of the New York Academy of Medicine. See page 898 issue of May 9.

BOOK REVIEWS

Survey of Public Health Nursing Administration and Practice By the National Organization for Public Health Nursing. 262 pp. New York: The Commonwealth Fund. \$2.00.

This volume is more than a report of a survey of the present situation in public health nursing in this country. It is a remarkable document bearing evidence of the capacity of a professional group to turn a scrutinizing focus on their professional service, measure it in the light of its ideals and honestly record its present status as it falls short of recognized standards.

The report deals with organization and administration of nursing in departments of health and visiting nursing organizations, the requirements for preparation of personnel and staff education, working conditions as to provisions for health of staff, salaries and vacations. The policies of public health nursing groups in their working relations to physicians are recognized as of major importance and according to the report seem to be more adequately considered than the relations with hospitals and social agencies.

The recommendations are sound and forward looking and should have the backing of physicians, and all professional and lay groups who appreciate the fact that adequate public health nursing, well organized and of high standards, is essential for all our communities, large or small.

Health Workbook: An Orientation Course in Personal, Racial, Home and Community Hygiene for College Freshmen By Kathleen Wilkinson Wooten. 212 pp. New York: A. S. Barnes and Company. \$1.50.

This is a syllabus indicating the contents of a course in health education. It is composed of forty-

six chapters, each presumably the outline of a lecture, with diagrammatic illustrations, references for collateral reading and blank forms according to which the student is to make detailed records of her personal health and surveys of health conditions in her home, her college and her community. It is not a textbook, since, while each subject is minutely subdivided, there is relatively little to show what was said on these various topics, for which the student must depend apparently on memory or notes. However, since any qualified teacher of the subject could readily give a course according to this outline, and since perhaps it is offered with this end in view, an opinion is demanded as to the instruction which would result from such adoption. First, it may be said that the course reflected is a very comprehensive and thorough one, and one which would require close and intelligent application on the part of every successful student. Yet certain doubts remain in the reviewer's mind. In the first place he questions whether the total content of the course is not greater than most undergraduate students are able or willing to digest to their advantage. Next he questions whether, after some thirty chapters devoted to personal physical hygiene, more than one chapter should not be devoted to the subject of mental hygiene. But most of all he questions the wholesomeness of self study and introspection to the extent that seems to be recommended. Much would depend upon the spirit in which the exercises were conducted, but one feels that in such an exhaustive course the knowledge could better be presented more impersonally. To sum up, the course indicated is a thorough one, perhaps best adapted to students who already know that they will need to apply this knowledge in some form of health work, but even for these a more objective approach would be preferable.

The Jew in Science By Louis Gershenfeld. Distributed by The Jewish Publication Society of America. 224 pp. \$2.75.

This book is hardly worthy of review. It has no scientific or literary value. It is a compilation of the names of Jews, Half Jews, and Converts in various scientific endeavors who have attained prominence in their respective fields. At best it is a pot pourri of facts about Jews which have from time to time appeared elsewhere in the literature.

The cause of the Jew in these trying times, is not to be sure best served by mass egotism, whether it has a racial or religious basis. It is difficult for the reviewer to see what other reason than for propaganda this work was written.

If as the author states "That it is an established fact that by comparison with the achievement of the non-Jewish scientists, and considering the number of Jews in the universe throughout the ages our Jewish record makes a good showing both in enterprise and results," why then, make such a valiant effort

to reestablish that fact in this present book? As one author aptly stated, "There is still no scholarly doctoral thesis entitled Prolegomena to the Etiology of Jewish Survival." The Jew will survive. He has long demonstrated his value to the community and needs no compilation of this sort to impress his Christian brethren as to his worthiness.

Papers of Charles V. Chapin, M.D. A Review of Public Health Realities. 250 pp. New York: The Commonwealth Fund, 1934. \$1.50.

This book of 250 pages contains a selected collection of Dr. Chapin's addresses before the American Public Health Association and other organizations with a similar purpose. They date from 1902 to 1927.

One to whom Dr. Chapin is only a reputation may unexpectedly find that, while these addresses are instructive, they are of historical interest rather than indicative of prophetic vision. They embody current thought of the time when they were written. In the flush of satisfaction over Major Reed's demonstration of the mosquito transmission of yellow fever, Dr. Chapin no more than anybody else imagined that thirty years later the transmission of yellow fever would still be puzzling investigators and that they would be contracting the disease directly from laboratory mice. Nor did realities seem to call for mention of the fact that notwithstanding Major Reed's demonstration the measures employed to prevent the spread of yellow fever by commerce were still the same as experience and clear thinking had previously shown to be effective only simplified in some features in the light of recent discoveries.

Nevertheless, Dr. Chapin has brought forward ideas and has been singularly fortunate in getting others to adopt them. His advocacy of the abandonment of useless fumigation in human habitations was happily timed but this is not the whole story. Dr. Chapin stimulates others to think for themselves. These addresses show how he does it. His ideas are proffered as the suggestions of a likable man respected by all who have the privilege of knowing him personally. He avoids controversy perhaps no more by what he says and how he says it than by what he leaves unsaid.

In presenting statistical evidence of the failure in certain cities of hospital isolation to decrease the prevalence of diphtheria, scarlet fever and measles, he does not mention the fact that transportation companies were then controlling the spread of measles among highly susceptible Eastern Europeans in emigrant boarding houses in Europe and on crowded ships with our immigration running over a million a year. Between 1895 and 1900 two hundred cases of measles often arrived on a single ship and the mortality at times was twenty per cent. With bankruptcy from hospital bills as the alternative and otherwise stimulated by our government the shipowners found ways of making a dozen cases on

a ship an unusual occurrence. Dr. Chapin might have said that the shipowners' methods were effective because they assured the hospitalization of cases of measles in the earliest prodromal stage while the conventional municipal practice whose failure he was disclosing was to isolate after eruption had appeared when the case had already done all the infecting of others that it was likely to do.

Dr. Chapin in his addresses points out the evidence of the decreasing practical importance of diphtheria and scarlet fever in our larger centres of population like Providence. He shows that the failure of municipal practice to control these diseases has resulted in the unconscious acquisition in some way of a high percentage of natural immunity to them. He also discusses the probability that there have simultaneously been biological changes in the infective organisms of these diseases and in the human population as well. He truly says referring to General Hancock "sanitation is a local issue" but he avoids the storm of protest which would follow if he had continued and said that the biological adjustment of the indigenous population of cities like Providence or Boston has now reached a stage when if efforts to control diphtheria and scarlet fever were entirely abandoned these diseases would still continue to decrease in practical importance and without any statistical evidence of a tendency to increase in prevalence over a five-year period.

Those who know Dr. Chapin do not have to be told that he had no misconception regarding the relation of public sanitation to public health, but we find in what he said and left unsaid in some of his addresses especially in connection with budget allocations the basis for wrong conclusions, capitalized by socially minded women and men in their efforts to find more congenial ways to serve the public officially than by enforcing community sanitation.

It is to be regretted that Dr. Chapin gives opportunity for a remark like, some claim that great attention should be given the fly but they have not proved their point, to be taken out of its context and perverted without making any reference himself to "realities" like the following:

A well-qualified tribunal found that it was flies which practically put *hors de combat* our army of undisciplined recruits with inexperienced incompetent officers by the time that the Spanish war ended by the collapse of Spain's resistance.

Apart from typhoid fever military commanders have now learned that the disposal of garbage so that it will not serve to propagate flies and the effective guarding of latrines from them are fundamental essentials in the prevention of military ineffectiveness from other gastro-intestinal infections.

Dr. Chapin might have confined his references to civil life and he might have cited evidence confirmatory of the conclusions of Dr. Miller's notable study for the Rockefeller Foundation to the New York City disappearance of

horse manure by reason of the displacement of horses by motor vehicles and the consequent decrease in flies has been a more important factor in the reduction of infant mortality than the "intensive" activities of the city's 200 child welfare organizations

Dietetics for the Clinician Milton A. Bridges Second Edition 970 pp Philadelphia Lea & Febiger \$10.00

A second edition of this book, which has been revised by the author, with the assistance of many specialists, is a welcome addition to the literature on nutrition. It is composed of three parts, namely, General Considerations, The Dietetic Management of Diseases of Adults, and Pediatrics, and there is a generous appendix. Each part is subdivided and some of these sections describe the physiology and chemistry of digestion, vitamin factors in the diet, the selection and preparation of foods, diseases and their diets, infant feeding, and the dietetic management of diseases of children. The appendix includes height and weight tables for men and for women, the mineral and vitamin content of foods, and the composition and fuel values of alcoholic beverages, and classified food tables.

The author avoids conflicting opinions on the dietetic treatment of most diseases, and instead presents the physiological and pathological needs of the patient, lists the food to be consumed and omitted, and also gives many daily menus. Sections on the treatment of the anemias and diabetes mellitus are comprehensive, in fact the work is a complete reference book on the subject. It also contains a good bibliography and an author and subject index, but it is not illustrated. It should be especially valuable to practitioners, but also to dietitians, medical students, and nurses.

The Treatment of Common Female Ailments Frederick John McCann Third Edition 379 pp Baltimore William Wood & Company \$4.75

McCann in the third edition of his manual has produced, with additions and alterations, a comprehensive survey of the important field of gynecology as the average doctor sees it or should see it. The absence of erudite references and cluttering footnotes gives the work an easy flowing style which affords the author full opportunity to drive home his points effectively with clever case summaries or tried and true maxims. The most valuable chapters are those on Examination of the Patient and on Cancer of the Uterus. McCann very properly urges his readers not to view the patient as a specialist, narrowly, but to bear in mind always the constitution or diathesis which may carry the key to the situation. The emphasis on diagnosis of uterine cancer cannot ever be too much overdone. Newer thoughts in gynecology receive due attention

in sections devoted to contraceptive methods and their effects, a conservative attitude toward the use of endocrines, and a genuine plea for prevention of pelvic diseases. Englishmen, or at least English men who write books, apparently depend far more upon drug therapy, and on drugs which have passed into the limbo of forgotten things than is true of our clinics and offices. The American gynecologist would probably in a book of this sort offer few prescriptions, that our elders fancied. Rather he would discuss the radium therapy of cancer of the cervix. It is gratifying to have an author freely discuss some of our problems of sexual incompatibility in marriage, placing the blame exactly where it belongs. One can but regret that McCann still advises surgery for cancer of the cervix, making no mention whatsoever of radiotherapy which has come to be a standard in this country. It would also seem that the day has passed when clitoridectomy was considered appropriate treatment for masturbation. The fact that the author has so earnestly emphasized the part Nature herself plays in the cure of the disease in many a serious situation makes up for all minor shortcomings of a charming monograph. One can be certain that the author is the veteran of many a worrisome problem, an older man whose aim is, not only to see how much good he can do, but how little harm he can do.

An Atlas of the Commoner Skin Diseases Henry C. G. Semon and Arnold Moritz 221 pp Baltimore William Wood & Company \$12.00

The present excellent work by Semon and Moritz is comprised of 103 excellent plates of the skin diseases most frequently seen in routine outpatient practice. Each plate occupies an entire large page and is reproduced by direct color photography from the living subject. The color values of the photographs are without question distinctly superior to any that have as yet been reproduced.

Adjacent to the page, on which the plate appears, is a concise and accurate description of the portrayed skin affection together with a differential diagnosis and an outline of the common and accepted methods of treating it.

As examples of Semon's excellent knowledge of his subject matter, reference may be made to his citation of the various possible causes of erythema nodosum, to his recommendation of the treatment of dermatitis exfoliativa with intravenous sodium thiosulphate, to his use of gold and bismuth compounds in lupus erythematosus. Exception should be taken, however, to his mention of the use of gold compounds intramuscularly and to his recommendation of the use of superficial x-ray therapy in acne, eczema and certain fungus infections.

The entire atlas occupies only 221 pages, yet it is so comprehensive and of such superlative value that it really should be part of every physician's literary armamentarium. Dermatologists especially will find the book valuable and of great interest particularly in connection with the matter of teaching.

The New England Journal of Medicine

VOLUME 212

MAY 30, 1935

NUMBER 22

ABNORMAL BLEEDING IN WOMEN AFTER THE AGE OF FIFTY*

BY FRANK A. PEMBERTON, M.D.† AND JOHN S. LOCKWOOD, M.D.†

FIVE hundred and ninety-six women over fifty years of age with abnormal vaginal bleeding as one of their complaints were treated as house patients in the Free Hospital for Women during the fifteen year period prior to January 1, 1932. Of this group 303 were found to have some form of genital carcinoma. In the remaining 49.1 per cent (298 cases) no malignancy was detected at the time of the original operative examination. However in six of the cases in this latter group there was subsequent evidence pointing toward a mistake in diagnosis, the presence of carcinoma having apparently been missed. That these six represent all the missed cases of cancer is reasonably certain, since 95 per cent were followed for one and 82 per cent were followed for at least two years.

TABLE 1

CANCER AND BENIGN BLEEDING COMPARED IN PATIENTS OVER FIFTY YEARS OLD (1917-1932)

	First 7½ Yrs	Sec- ond 7½ Yrs	Total
Carcinoma			
Cervix	81	125	206
Endometrium	23	55	77
Cervix and Endometrium	2	1	3
Vulva	3	4	6
Vagina	0	6	6
Ovary (Causing Bleeding)	4	1	5
	111	192	303
Non Malignant	93	200	293
Total of All Bleeding Cases	204	392	596
Per cent Benign	46%	51%	41.1%
Per cent Malignant	54%	49%	58.9%

Five granulosa cell tumors included

Table 1 presents the causes of bleeding in both malignant and uncorrected non malignant groups. To tabulate accurately and completely the benign causes of bleeding has been impossible because in some instances no cause could be assigned, whereas in others more than one factor might have been responsible. Furthermore,

From the Free Hospital for Women, Brookline, M. S.
†Pemberton, Frank A.—Surgeon in Chief, Free Hospital for Women, Brookline, Lockwood, John S.—Assistant in Surgical Research, Presbyterian Hospital, New York. For record and addresses of authors see "This Week" issue—page 1087.

insufficient operative data increased the difficulty of evaluating causes. However we have included in table 2 a representation of the path

TABLE 2

NON MALIGNANT CAUSES OF UTERINE BLEEDING AFTER AGE 50

Before the Menopause	After the Menopause
Polyp	9
Fibroids only	6
Polyp and fibroids	3
Cervicitis	6
Endometrial dysplasia	29
Endometrial dysplasia associated with other lesions	22
With fibroids	13
" polyp	3
" adenomyoma	4
ovarian tumors	2
Pelvic inflammation	3
Pelvic inflammation and fibroids	5
Acute endometritis	1
No accountable lesion	15
Total	98

ological lesions encountered which at least serves to emphasize the differences between the pre and postmenopausal vaginal bleeding in patients of this age. Of particular interest are the seven cases of postmenopausal flowing due to endometrial dysplasia induced by resumption of endocrine activity in neoplasms of the ovary. These cases have been carefully checked by several pathologists.

The operative procedures employed in the 293 cases of benign bleeding are outlined in table 3.

MISSSED CASES OF CANCER

Ten of the 293 returned to the Free Hospital for Women for further treatment on account of persistent bleeding and four of these were found to have cancer. There were two other

cases which we believe died of cancer without returning to this hospital. Therefore it appears that in six cases out of 293, or two per cent, it is fair to say a mistake in diagnosis was made at the original operative examination. Three of the four who returned were treated successfully and now show five-year cures. The remaining one died in spite of close observation.

TABLE 3

TREATMENT

Dilatation and curettage	215 — 75%	
Hysterectomy	64 — 23%	(6 were complete hysterectomies)
Excision of cervical polyp	49 — 17%	
Radium	59 — 21%	(Average about 1000 mg hrs)
Amputation of Cervix	31 — 11%	
Biopsy of Cervix and other treatment	30 — 11%	
Miscellaneous	4 — 15%	
No operation	2 — 07%	

over a period of three years. Therefore three died of cancer in spite of the apparent exclusion of that disease at the first examination.

The summaries of the cases in which a mistake in diagnosis is now known or suspected are given below.

No 6 S C Hospital No 2839

Admitted May 4, 1917. Admission diagnosis carcinoma of the uterus.

Unmarried, nulliparous woman of fifty-eight.

The chief complaint was of lower abdominal distress for five months, a blood-streaked vaginal discharge and a loss of ten lbs, in six months.

P H Negative except for removal of a cervical polyp by her L M D five months before. Menopause at forty-nine years.

Examination. Showed stenosis of the vagina with the uterus somewhat enlarged. A biopsy of the cervix was negative.

Operation May 22, 1917.

Either examination. Polypoid growth projecting from the cervix. Uterus not outlined. Dilatation and curettage. Cervix dilated, the polyp removed coming away in one piece resembling a cast of the uterus, and followed by the escape of a large amount of pus.

Pathological report

Chronic cervicitis and cervical polyp. No sign of cancer.

She was discharged in fifteen days symptom-free.

Three months later her L M D reported that she was no better, had much "pain in the bowels" and some vaginal discharge. She died October 16, 1919, two years and five months after operation and her death certificate gave cancer of the uterus and uremia as the cause. There was apparently no autopsy.

Comment. This is not a proved error in diagnosis. The evidence points strongly toward it and we feel it necessary to include this case. It has been the usual practice in the hospital in recent years to perform a hysterectomy in all

cases with as suspicious a history as this in spite of a negative biopsy. The fact that we cannot be certain that this patient did not die of carcinoma is evidence to justify this practice.

No 105 F S Hospital No 40125 and No 43175

Admitted December 7, 1924. A fifty-five year old housewife para 11.

Complaining of continuous flowing for two months, four to six napkins per day with the occasional passage of large clots and lower abdominal pain.

P H She had had a normal menstrual history up to the onset of the P I.

Examination. Disclosed an abdominal tumor above the umbilicus, and a fibroid mass in the posterior culdesac. She was flowing. Cervix not described.

Operation January 21, 1925.

A large fibroid uterus involved in dense adhesions was removed by a supravaginal hysterectomy.

Pathological report. Multiple fibroids.

Her postoperative course was uneventful and she was discharged on February 11, 1925. At the discharge examination it was noted that there was some fixation of the cervix and induration back of it extending into the left vault. At a follow-up examination on March 20, 1925, there was found to be some induration in both vaults. In February, 1926, she began to flow intermittently and in August, 1926, returned to the outpatient department where a diagnosis of carcinoma of the cervix was made. She was readmitted shortly thereafter and at operation was found to have a squamous cancer of the cervical stump. She was given 4800 mg hrs of radium and apparently the treatment was successful as subsequent follow-up reports show her symptom-free to date (1934).

Comment. This case was reported by Pearse as one of the two cases among 1900 supravaginal hysterectomies at this hospital between 1900-1925 in which cancer of the cervix was undiagnosed at the time of operation. (The other patient was only thirty-eight years old.) It illustrates the advisability of routine examination and biopsy of the cervix in all cases within this age group regardless of the gross appearance of the cervix or the presence of other demonstrable pathology.

No 118 L E E Hospital No 429

A seventy year old single nullipara admitted on November 18, 1925, complaining of bloody vaginal discharge for two months. She had had a myomectomy at the Waltham Hospital twenty-four years before and twenty-three years before had had a dilatation and curettage, myomectomy, left salpingo-oophorectomy and hysterorrhaphy at this hospital. The pathological report showed a subserous fibroid and polypoid hypertrophy of the endometrium. Menopause at forty-eight.

P H and general P E entirely negative. Pelvic examination showed the uterus slightly enlarged.

Operation November 19, 1925.

Either examination. Showed an enlarged uterus and dilatation and curettage produced no curettings. It was felt that the endometrium was atrophied. Because of the patient's age nothing further was done. Five months later she was admitted to another hospital with signs of peritonitis. She was explored, found to have a pelvic abscess and extensive carcinoma of the uterus with metastases. No biopsy was taken and no autopsy was done after her death in April, 1926.

Comment Here, as in the first case, we have no definite pathological evidence of carcinoma but must accept the observation of the surgeon who performed the final exploration. This case certainly presented a textbook history of cancer of the endometrium. However there are inevitably a few elderly patients with suspicious lesions who are not explored because the risk of operation is greater than the doubtful presence of a serious lesion warrants, and this case must be included in that group.

No 148 Mrs M R Hospital No 44-375

Admitted July 14 1927 A sixty-five year old housewife who had had five pregnancies. She came in complaining of bloody vaginal discharge following intercourse on five occasions during the previous five weeks. Menopause at forty-two.

Examination Rectocele and lacerated cervix.

Operation July 19 1927

Dilatation and curettage produced no curettings.

Biopsy of the cervix showed chronic cervicitis on both frozen and paraffin sections.

The cervix was cauterized with the actual cautery.

Follow-up examination on September 2 1928 showed induration of the cervix. She had had no symptoms but a biopsy was done because of this finding and carcinoma of the cervix was found. Re-examination of the original tissue removed on July 19 1927 showed very early squamous carcinoma. She was given 4800 mg hrs. of radium. She was followed for more than five years and developed no evidence of persistent disease in the cervix. We have lost track of her during the past year.

Comment In this case the malignant process was in such an early stage that the biopsy tissue was not considered malignant at the time of routine examination. However the regular pathologist was away at the time on vacation and on his return he checked over the slides and accumulated during his absence and made a diagnosis of carcinoma in this case and suggested that the patient be sent for. The readmission was long delayed for reasons which are now obscure. We include this case not as a real mistake in diagnosis but rather as an example of a lapse in the ordinary efficiency of hospital routine which we feel might well occur in any institution. Another lesson to be brought out by this case is the emphasis on the fact that there is a group of borderline cases where the decision of a pathologist experienced in lesions of the cervix is required in making the differential diagnosis of carcinoma and benign diseases.

No 154 Miss M B Hospital No 64-47

Admission December 1 1917 A fifty-five year old single nullipara complaining of daily flowing for seven weeks the first evidence of flowing since the menopause twelve years before. She had a blood pressure of 205/60.

Operation December 6 1927

Other examination showed stenosis of the vagina a small cervix and an enlarged fundus.

Curettage showed a stenosis in the mid portion of cervical canal. No grossly remarkable curettings were obtained.

Biopsy was taken from the cervix which was re-

ported negative. She was given 1200 mg hrs of radium.

She continued to flow after leaving the hospital and was readmitted January 23 1928.

A dilatation and curettage was again performed with negative findings and abdominal exploration was done. A small fibroid was found in the lower uterine segment and a supravaginal hysterectomy was done without event.

The pathological examination showed adenocarcinoma of the endometrium an adenomyoma with adenocarcinoma and an early benign papillary serous cystadenoma of the left ovary.

The patient reports herself well in September 1934 seven years postoperative.

Comment This case, like the first, third and last cases in this group, illustrates the necessity for performing a hysterectomy on suspicious historical evidence alone in spite of a negative examination under anesthesia. A complete hysterectomy would have been better treatment.

It happened that in this case the carcinoma apparently started in an adenomyoma and extended to the endometrium. When the specimen was examined there was well advanced carcinoma in the adenomyoma and only very ill defined and early cancer in the overlying endometrium. This doubtless accounted for the negative curettage. In this connection we might mention that there have been at least two other cases, one in 1926 and one in 1930, in which carcinoma developed primarily in areas of adenomyoma buried in the uterine wall, where curettage was ineffective in making the diagnosis.

No 161 Mrs M R. Hospital No 43-218 No 16-379 No 47-111 No 18-255.

Admitted October 11 1926 A fifty-five year old widow para V came in complaining of blood streaked vaginal discharge for six months and a flowing spell of seven days duration three weeks before. Menopause at fifty-one. She had had four previous operations including two Caesarian sections and a hernia repair. Her blood pressure was 175/120 and she weighed 175 lbs.

Pelvic examination negative.

Operation October 13 1926

Other examination and dilatation and curettage negative. She was discharged October 16 1926 and readmitted April 29 1927 for persistent bloody discharge.

Operation May 8 1927

Other examination negative. Dilatation and curettage. Stenosis of cervical canal. A uterine sound inadvertently pierced the fundus. No specimen obtained.

Biopsy of cervix showed chronic cervicitis. She was discharged on May 11 1927 and readmitted October 4 1927 on account of staining for two months. Blood pressure 105/170 heart enlarged. This time examination and dilatation and curettage showed the same lack of noteworthy findings but she was given 1000 mg hrs. of radium in the uterine canal and discharged October 8 1927. Readmitted for the fourth time July 5 1928. Blood pressure 168/90.

Operation. Other examination showed a cervical polyp 0.5 cm in diameter protruding from the os. Dilatation and curettage produced friable tissue characteristic of cancer. The pathological examination however showed necrotic tissue from the

uterine cavity and a cervical polyp" She was discharged July 16, 1928

Readmitted October 12, 1928, for the fifth time when she reported profuse bleeding for two weeks and showed a mass rising half way to the umbilicus

Operation November 21, 1928 Supravaginal hysterectomy, uneventful

Pathological report showed adenocarcinoma of the uterine wall with metastases in the endocervix She was given 1200 mg hrs of radium for a metastatic lesion in the vagina on July 30, 1929 but died in September, 1929, of carcinoma approximately three years after her original admission

Comment In this case both the patient and staff were fully aware of the likelihood of carcinoma but examinations were repeatedly so negative that operation was not performed until it was too late It is quite natural to be reticent about undertaking even as safe an operation as a hysterectomy when repeated pathological examinations yield no more evidence of a real lesion than the studies of this case It illustrated the value of careful follow-up of doubtful cases although of course in this case even that failed to provide the patient with an adequate treatment in time to achieve a cure

DISCUSSION

It is generally admitted that one learns more by mistakes made in the practice of medicine than by successes, that is, if one makes the effort to become aware of one's mistakes The experience gained through error in these cases has strongly influenced the methods used at the hospital in patients with uterine bleeding The points to be emphasized are the following

1 When the clinical evidence points toward the presence of carcinoma of the endometrium a hysterectomy should be performed in spite of negative findings by curettage, particularly

when the patient is a nullipara who has passed the menopause

2 The treatment of elderly patients with uterine bleeding of any type is not complete without biopsy or thorough examination of the cervix to rule out carcinoma even though there may be an obvious lesion elsewhere in the genital tract

3 About fifty per cent of women who report abnormal bleeding after the age of fifty will prove to have cancer as a cause

4 Some authorities have advocated doing a complete hysterectomy without curettage in any patient who bleeds after the menopause on the ground that she almost certainly has cancer of the endometrium Table 2 shows twenty-seven patients with polyps who would have been so operated on unnecessarily if an intra-uterine examination had not been done

5 We believe the two per cent of error which we made in these 293 cases was small considering the many causes for such bleeding and the factors involved in treating elderly patients sensibly

SUMMARY

1 Of a consecutive series of 596 patients treated at the Free Hospital for Women with abnormal uterine bleeding as one of their complaints, 293 or slightly less than fifty per cent were found to have benign lesions, at the first operation

2 Six of these 293 or two per cent, were actually cases of carcinoma which were improperly diagnosed, thereby reducing the percentage of non-malignancy to forty-eight per cent

3 The diagnostic or operative procedures which, if consistently applied, would exclude such errors in diagnosis are emphasized

THE DEVELOPMENT IN THE TREATMENT OF PULMONARY TUBERCULOSIS FROM 1696 TO THE PRESENT TIME*

BY GERARDO M. BALBONI, M.D.†

FROM Hippocrates down, many minds for centuries have grappled with the problem of treating pulmonary tuberculosis

In 1696 Georgius Baglivi in his *De Praxi Medica*, Book II, Chapter XI, Section 9, proposed the treatment of phthisical pulmonary ulceration by a transverse incision between the ribs reaching to the seat of the lesions He never performed the operation personally, but saw an able surgeon in Padua treat a severe wound of the lung in this manner, the patient recovering in two months

*Presented before the Harvard Medical Society December 11 1934 and at Grand Rounds Massachusetts General Hospital April 11 1935

†Balboni Gerardo M. — Associate Physician Massachusetts General Hospital For record and address of author see "This Week's Issue" page 1957

Sir Edward Bary, in 1727, in "A Treatise on a Consumption of the Lung" and "A Treatise on Three Different Digestions" advised incision and drainage especially in cases in which the lung is adherent to the parietal pleura He says, "Such a probable relief can only be expected by opening the breast where the most frequent pain and oppression direct the situation of the ulcer"

Samuel Sharp in 1747, in "A Treatise on the Operation of Surgery," advised incision and drainage in abscesses of the lung and pleura which did not break spontaneously

Benjamin Bell and M. David advised opening of cavities, as also did Gumprecht Pouteau in 1798, in his "Mémoires sur la Phthise Pulmonaire," did likewise

No advances were made in this century in

the treatment of the disease. At this time, tuberculous and non tuberculous suppurative lesions of the lung, bronchi, and pleura were not well differentiated.

It is of interest to know that Ebenezer Gilchrist in 1777, in his book 'Uses of Sea Voy



George W. Balboni
1819-1881

FROM DE PRAXI² MEDICA 1696
BOOK II CHAP. II SEC. 9

A PHTHISICK ARISING FROM AN ULCER IN THE LUNGS IS COMMONLY BRANDED AS INCURABLE, UPON THE PLEA THAT THE ULCER IS INTERNAL AND OCCULT, AND CANNOT BE CLEANSED LIKE OTHER EXTERNAL ULCERS. BUT WHY DO THEY NOT MAKE IT THEIR BUSINESS TO FIND OUT THE TRUE SITUATION OF THE ULCER, AND MAKE AN INCISION ACCORDINGLY BETWEEN THE RIBS, TO THE END THAT PROPER REMEDIES MAY BE CONVEYED TO IT? FOR MY PART, I KNOW NO REASON WHY THAT SHOULD LIE NEGLECTED ABOUT SEVEN YEARS AGO, WHEN I WAS AT PADUA, A MAN RECEIVED A WOUND IN THE RIGHT SIDE OF HIS CHEST THAT REACHED TO THE LUNGS, AND EMPLOYING AN ABLE SURGEON HAD AN INCISION MADE BETWEEN THE RIBS TO THE LENGTH OF SIX FINGERS BREADTH IN ORDER TO DISCOVER THE SITUATION OF THE WOUND IN THE LUNG, WHICH WAS PERFECTLY CURED IN TWO MONTHS TIME WITH VULNERARY RIS APPLIED WITH TENTS AND WITH SYRINGING. NOW PRACTITIONERS OUGHT TO USE THE SAME PIECE OF DILIGENCE IN CURING A PHTHISICAL ULCER IN THE LUNGS, LEST THE SCROLL OF INCURABLE DISEASES SHOULD GROW TOO LONG TO THE INFINITE DISGRACE OF THE PROFESSION. BELIEVE ME GENTLEMEN, ASSIDUOUS THOUGHT AND USE IMPROVES AND WHETS THE KNIFE, BUT SLOTH AND DESPAIR BREAKS ITS EDGE.

Dr. GEORGE BALBONI

FIG. 1

ages in Medicine," advised patients with pulmonary tuberculosis and other diseases to take a sea voyage. Here we have the first hint of combining rest and fresh air.

In the next century, more life came into the

subject for there were added to the incision, thoracentesis and aspiration.

Early in this century, James Carson, a physiologist of Liverpool, did a number of experiments inducing a pneumothorax in rabbits by the incision method having demonstrated that rabbits could live with a collapsed lung and that both lungs could be collapsed alternately and the animal live.

About this time, 1819 Laennec invented the stethoscope. Carson made use of it in the examination of patients.

As a result of these experiments and clinical observations, an opportunity presented itself to put the method into practice on two patients with advanced pulmonary tuberculosis. In both cases in the presence of James Carson, an incision was made through the parietal pleura to the lung but no pneumothorax was induced. The patients died, at autopsy it was found that the pleura was adherent. Strange to say, James Carson's work fell into oblivion. Although Carstätt in his treatise on "Pathology and Therapy", 1843, Wunderlich in "Pathology and Therapy", 1856, Köhler in "Special Therapy", 1867 and H. E. Richter in "Principle of Internal Medicine", 1856, mention Carson they did not consider the method feasible and gave him no consideration. It was only in 1909 that the brilliant experimental work of Carson was brought to light by Daus.

The next worthy experiment was done by Krimer in 1830. He did an exteriorization of a lobe in a dog tied the pedicle and allowed the lobe to slough. The dog recovered. Krimer wished to do the same operation in a patient with an abscess in the inferior lobe of the left lung but was dissuaded by his colleague Walther and simply made an incision to the pleura, applied caustics, and left the rest to nature. Unexpectedly the patient improved and left the hospital almost well. Six months later however, he came back with signs of severe disease and died in six weeks. At postmortem at the site of the original cavity a large cavity existed with parenchymal degeneration and with many adhesions. A smaller cavity was also found which seemed of recent origin. The right lung was normal.

Krimer's second case was a woman twenty-six years old with an abscess in the inferior lobe. An incision was made between the fifth and sixth ribs exposing the parietal pleura. The patient improved for some time.

Incision, thoracentesis, cauterization with caustic or thermocautery, and aspiration were carried on more or less successfully by Richter, Javmes, Freteau, Richarand and others.

Richarand in 1818 operated on a man with a cancerous growth of the chest where he resected two ribs and part of the pleura. The

patient developed an empyema, adhesions were formed between the pericardium and the pleura. The patient was reported out of danger in eighteen days. Prior to this date I have not been able to find any operation embodying rib-resection.

Ramadge in 1839 in his book on "Consumption Curable" speaks of having done thoracentesis in pulmonary tuberculosis with favorable results and he makes a heading "Consumption cured by thoracentesis." It is only fair to say that Ramadge did not do a thoracentesis for collapsing the lung, although he has been repeatedly quoted as a precursor of Forlanini.

In 1840 George Bodington, a village doctor in England, wrote a book "On the Treatment and Cure of Pulmonary Consumption." He urged the free administration of nutritious food and stimulants with exercise in the pure air. It is remarkable that this simple village doctor should have arrived in 1840 at these conclusions. He was severely criticized at the time and he gave up general practice but in 1857, some years later, his treatise was unearthed and ample justice done.

In 1854 a departure in the treatment of tuberculosis and non-tuberculous pulmonary lesions with cavitation was attempted by Horace Green of New York who passed a catheter into the trachea, then into the bronchial tubes and with a syringe injected a solution of silver nitrate. Green claimed some success with the treatment.

INTRAPULMONARY INJECTIONS IN THE TUBERCULOUS LUNG

In 1873 W. Koch reported experiments made since 1869 showing that the lung parenchyma can be changed by punctures and by the injection of iodine in varying strengths, the change taking place without any transformation so that only the immediate vicinity of the puncture canal becomes inflamed and changes directly into connective tissue.

Eugene Fraenkel in 1882 did similar experiments, which were followed by clinical work on patients by Fr. Mosler, Wm. Pepper and others.

The injection of chemical substances was attempted so as to influence the healing of tuberculous and non-tuberculous cavities, and favor the growth of fibroid tissue. The results obtained were not encouraging.

EXTIRPATION OF THE LUNG

About this time, 1881 to 1885, experimental work, extirpation of the lung in dogs, rabbits, cats, guinea pigs, etc., was reported by Block, Th. Gluck, Hans Schmid, W. Koch, Marcus, Biondi, Zuno and Ruggi, showing that a portion or a whole lung could be removed and the animal survive. Biondi and Zuno found that if bilateral lobectomy was done simultaneously, the animal died, but if done alternately the animal

survived. These results were put into practice in the resection of the tuberculous lung.

Block was the first to attempt the resection of the tuberculous lobe in a woman. The woman died and Block committed suicide.

Ruggi, Tuffier, Doyen and Lowson have excised a lobe of the tuberculous lung. Ruggi's two cases lived a short time. The cases of the other three operators were reported well months later, but it has been shown that pulmonary tuberculosis is not adapted for resection as the disease is rarely localized.

Ruhle in 1883 in a discussion before the German Medical Congress rejects all direct surgical interference in the tuberculous cavity.

It is otherwise in bronchiectasis, tumors, or traumatically injured lobes. Omboni in 1876 and 1879, experimenting on dogs, found that he could extirpate part or a whole lobe without the animals dying. In 1885 he reported the case of a twenty year old lad who shot himself in the chest, the bullet having passed just to the inner side and below the left nipple. The patient was in a very grave condition. An incision was made in the third intercostal space, 1000 cc. extravasated blood evacuated, he pulled out the affected portion of the superior part of the lung, ligated the affected lobe, excised it and allowed the rest to enter the pleural cavity. The patient improved after the operation, but death followed in seven days. Omboni says this was due to lavage of the pleura which caused an abscess plus phenol poisoning from the medications.

Demons in 1886 resected a portion of a herniated lung between the ninth and tenth ribs.

COLLAPSE THERAPY

In order to control the often extensive tuberculous disease, a method was sought which would attack the whole pathology present. Such a treatment was proposed by Forlanini in 1882. He suggested the treatment of pulmonary tuberculosis by an artificial pneumothorax.

Forlanini's proposal in 1882 was practically coincident with Koch's discovery of the tubercle bacillus. Koch's discovery was naturally followed by a widespread attempt to find a specific cure for the disease. Tuberculin was hailed as such. Forlanini tried tuberculin with an indifferent result.

About this time, Dr. Harold C. Ernst, who later became Professor of Bacteriology at the Harvard Medical School, treated certain cases at the Massachusetts General Hospital with tuberculin, which however, proved to be useless and often harmful.

Collapse therapy has had a long period of preparation and development. There were clinical observations, independent of the brilliant experimental work of James Carson, by Stokes in 1837, Czernik, 1872, Banks, Toussaint, 1880, Herard 1881, Weil 1882, Forlanini 1882 and

Bianchi 1884, showing the beneficial effects in certain cases of pulmonary tuberculosis of a spontaneous pneumothorax or hydrothorax in staying the progress of the disease. Caylay in 1885 had treated a case of severe hemoptysis by making an incision in the chest and creating a pneumothorax. The hemorrhage was controlled

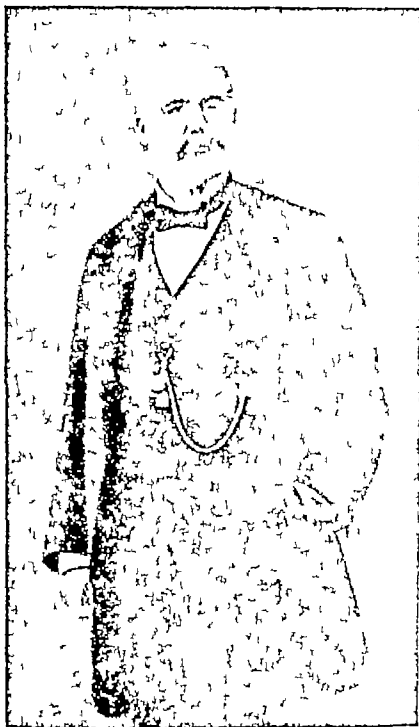


FIG. —

CARLO FORLANINI

11-Gluggen 1847—25 Maggio 1913

A life long student of Pulmonary Tuberculosis working silently and persistently for many years developed the present method of treating Pulmonary Tuberculosis by Artificial Pneumothorax, he reported the first clinical cures.—Dr. G. M. Dalboni's Collections.

but the patient died from sepsis. Adams in 1887 corroborated this and thought that it could be possible to treat phthisis with artificial pneumothorax.

Spath likewise in 1888 proposed to carry this thought into practice. At the same time Potain was treating recurring pleural effusions by the withdrawal of the fluid and replacing it by sterile air. He pointed out the advantages of maintaining the lung collapsed for some time.

Parker in England was treating special cases of empyema by thoracentesis and simultaneous injection of air.

From Forlanini's proposal in 1882 to the time of his first report of the cure of an advanced unilateral case of pulmonary tuberculosis treated by pneumothorax, which was reported at the Sixth Congress of Internal Medicine in Rome in 1895 and published in the *Gazzetta Medica di Torino*, 1895 No. 41, he kept quietly at work perfecting his technique.

In a widely read medical journal the *Munchen med. Wchnschr.*, No. 15, April 10, 1894, p. 296, there appeared the following résumé: Forlanini of Turin. Versuche mit künstlichem Pneumothorax bei Lungenphthise.

"Gestützt auf den wiederholt erwähnten günstigen Einfluss der Pleuraergüsse und des Pneumothorax auf den Verlauf der Phthise hatte F. Versuche am Lebenden gemacht und 2 Fälle mit günstigem Erfolg behandelt. Der Pneumothorax kann natürlich nur unilateral angelegt werden. Die Pleura erträgt das Vorhandensein der Luft sehr gut, Reaction oder Reizung oder sonstige schädliche Wirkung wurde nicht beobachtet. Das Sauerstoff war rascher von ihr resorbiert als der Stickstoff, dasselbe ist letzterem zur Erzeugung des Pneumothorax vorzuziehen. Die Operation muss langsam und allmählich erfolgen, jeden Tag eine kleine Menge N wenn derselbe resorbiert ist, muss neuer zugeführt werden. Die Resorptionsfähigkeit von seiten der Pleura vermindert sich mit der Zeit. Nach einigen Monaten genügt eine in grossen Zwischenräumen gemachte Luftzuführung."

In 1898, Dr. John Murphy in his Oration on Surgery of the Lung reported five cases treated by pneumothorax. Murphy makes no mention of Caylay or Forlanini. Both Forlanini and Murphy used nitrogen. Murphy used a trocar injecting very large amounts of nitrogen and creating a voluminous pneumothorax. The injections were repeated at long intervals. Forlanini used the puncture method injecting small amounts of nitrogen at frequent intervals and creating a gradual collapse. His technique was exact and well worked out, the number of cases was never very large at any one time but they were minutely studied and followed. In his lectures and publications he reported his technique and clinical results. In these lectures he opposed the Murphy and Brauer technique declaring that it gave only temporary results, and never lasting ones. Forlanini's method is the one universally employed now.

In 1899 Dr. August F. Lœnke followed with reports of cases treated with Murphy's technique. After the publication of Loomis's paper

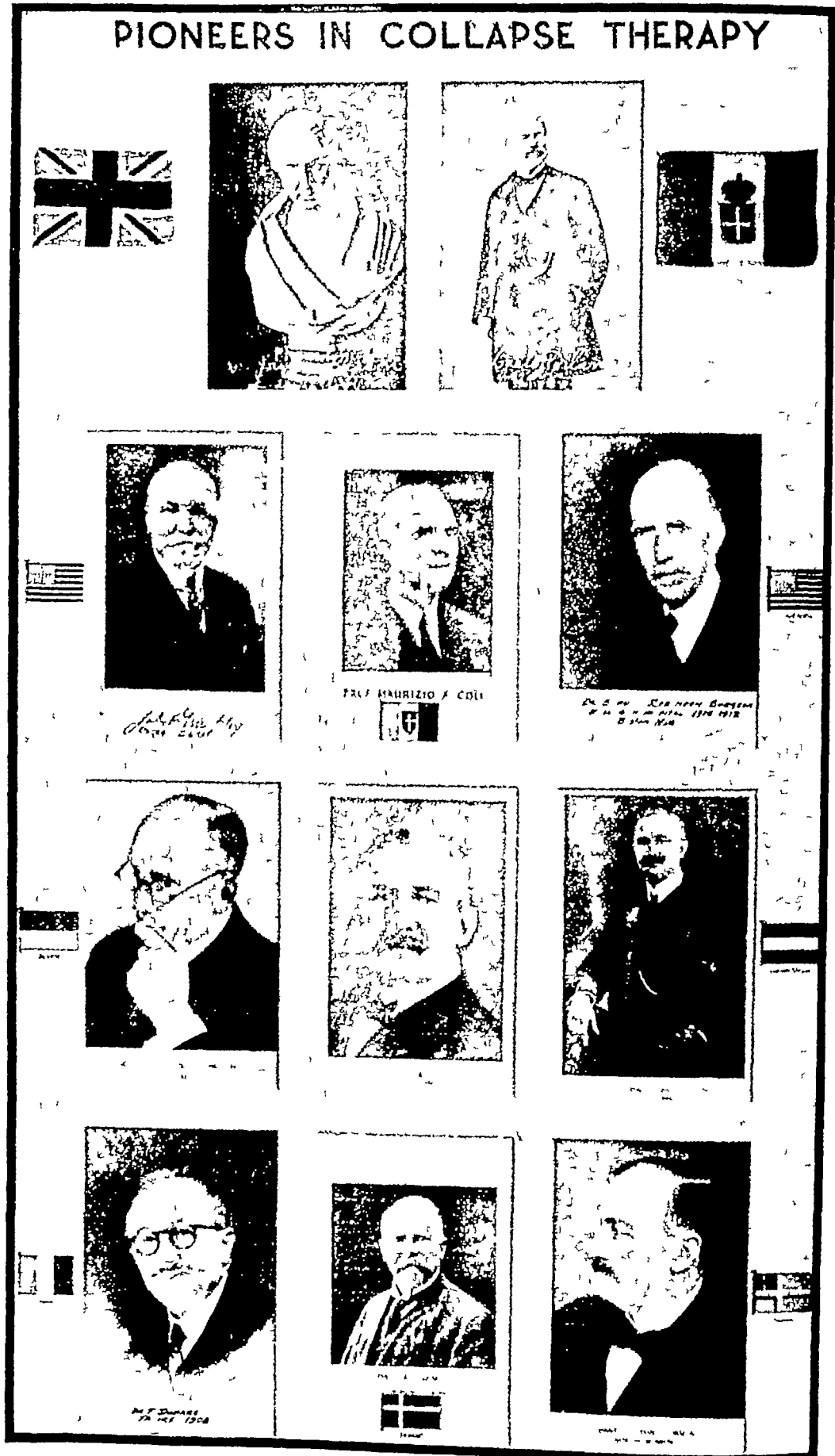


FIG 3

the success of the treatment it is imperative that all details be carried out. The physician has new problems daily which must be solved and which give a variety to the work that is otherwise lacking in the treatment of pulmonary tuberculosis. They lend to collapse therapy, which offers the possibility of excellent results for many otherwise hopeless patients, a certain charm and make the

resection. Stewart Tidey in 1896 directed attention to the treatment of consumption by restricting or minimizing the lung expansion by bandaging the affected side of the chest. Intrapleural and extrapleural collapse have replaced pneumotomy and pneumonectomy in tuberculosis for obvious reasons.

The successes in artificial pneumothorax have encouraged the surgeon to radical operative



FIG 5

treatment one of the most worthwhile tasks of the lung physician. Only one who at all times controls the technique with all its details will get from it complete satisfaction, therapeutically as well as scientifically."

FIRST ATTEMPT AT EXTRAPLEURAL COLLAPSE

In Germany, Quincke in 1888 and Carl Spengler in 1890 emphasized the purposefulness of the retraction of the thorax and tried to support this idea by an operation. Turban in 1899 aided the shrinking tendency of the lung by rib

procedure beyond that which Quincke and Turban attempted. Dumarest rightly says, "C'est, quant, à nous, par le pneumothorax que nous sommes arrivés à la thoracoplastique."

REFERENCES

1. Adams F. E. The surgical treatment of pulmonary cavities. *Lancet*. 1 799 1887
2. Albert, E. Ueber Lungenchirurgie. *Wien med. Presse* 25 852 1884
3. Bacchini Luigi. Contribution to the surgical treatment of pulmonary cavities. *Gaz. Med. Roma*. P 121 1883
4. Balboni Gerardo M. The treatment of pulmonary tuberculosis by artificial pneumothorax according to the method of Forlanini. With a report of twenty one cases. *Boston M. & S. J.* 167 755 (Nov 28) 804 (Dec. 5) 844 (Dec. 12) 882 (Dec. 19) and 928 (Dec. 26) 1912

- Idem: The development of modern artificial pneumothorax. *Br. J. Surg.* 22: 1814
- Idem: Pontalini: artificial pneumothorax. A study 171
- 497 (Nov. 6) and 958 (Dec. 17) 1914
- 6 Mondini D.: Extirpation of the lung. *Glor. Int. Sc. Med.* 4: 759 1922. Idem 5: 270 and 417 1922
- 6 Block H.: Lung resection and its indication with demonstration of animal experiments. *Verhandl. d. d. wiss. path. Gesellsch.* 7: 192
- 7 Idem: Letter from Berlin. *Boatou M. & S. J.* 103: 261 1922 (By Dr. G. L. Walton)
- 8 Bonchout, M. E.: Mémoire sur les fistules pulmonaires cutanées. *Gaz. méd. de Paris* 9: 134 1857
- 9 Bruner L.: Die Behandlung der einseitigen Lungenphthise mit künstlicher Pneumothorax. *München. med. Wchnsch.* 53: 325 1906
- 10 Bruner L. and Spengler L.: Erfahrungen und Überlegungen zur Lungenkollapstherapie. *Beitr. z. Klin. d. Tuberk.* 10: 1 1912
- 11 Bruner L.: On the operative treatment of lung cavities. *Cong. Int. Sc. Med. Copenhagen* 10: 1881
- 12 Claessens V.: Vomique survenue à la suite d'une péripneumonie aiguë. Guérison par une ouverture pratiquée à un 1^{er} mur formée entre les trachéotomie et quatrième fausses côtes du côté gauche. *Ann. Soc. d. méd. de Gand* 5: 170 1853
- 12 Daux, S.: Historisches und Kritisches über künstlichen Pneumothorax bei Lungenachwindsucht. *Therap. u. Hyg.* 11: 221 1909
- 14 David, M.: Sur les abcès. *Mém. de l'Acad. Royale. Sec. méd. Part. 10* 4: 1773
- 15 de Crenville: De l'intervention opératoire dans les abcès du poulmon. *Rev. Méd. de Suisse Romande* 3: 441 1905
- 16 Delprat, O. C.: Het Volschord Sanatorium en de over de behandeling met kunstmatigen Pneumothorax. *Ned. Tijdschr. v. Geneesk.* 4: 83 1901
- 17 Demons A.: Résection d'une portion du poulmon et extirpation d'un rein phthisiques avec succès sur le rat. *Bull. et Mém. Soc. de chir. de Paris* 1: 460 1854
- 18 Doyen: Chirurgie du Poulmon. *Cong. Française de Chir.* 19: 194 1905
- 19 Dumarest, M. F.: Du pneumothorax chirurgical de 1^{er} traitement de la phthisie pulmonaire. *Bull. méd.* 23: 1 1909
- 20 Fernet: Des injections intra pleurales antiseptiques de la pleurésie infectieuse. *La Semaine Méd.* 9: 343 1909
- 21 F. Marshall, C.: History of a case treated with injections into the lung parenchyma. *Morgagni Milano* 31: 3 5 1909
- 22 Frankel, E.: Experiments on the influence of injection of medicinal substances into the lung tissue. *Deutsch. med. Wchnsch.* 31: 51 1906
- 22 Gluck, T.: Experiments on lung extirpation. *Berlin. klin. Wchnsch.* 7: 645 1901
- 23 H. Imboe: Behandlung av Lungentuberkulose ved hjælp av kunstige Pneumothorax. 20: 405 1905
- 25 Koch, W.: History of the surgical treatment of lung cavities. *Berlin. klin. Wchnsch.* 31: 194 1906
- 26 Koch W.: Lung surgery. *Deutsche med. Wchnsch.* 3: 440 1902
- 7 Krimer G.: Sur quelques essais tendant à obtenir la guérison des certains cas de phthisie pulmonaire par les moyens chirurgicaux. *J. Comp. de Sc. Méd.* 1906
5. Kröplein: In regard to lung surgery. *Berlin. klin. Wchnsch.* 1: 3 1881
- 49 Lillingston C.: The treatment of phthisis and hæmoptysis by artificial pneumothorax. *Lancet* 2: 145 1911
- 50 Loomis, Henry P.: Some personal observations of the effect of intra-pleural injections of nitrogen gas in tuberculosis. *Med. Record* 67: 476 1900
- 51 Lowson J.: A case of pneumonectomy. *Brit. M. J.* 1: 1152, 1902
52. Maragliano E.: Caverna polmonare; incisione endotoracica. *Gaz. med. Ital. prov. veneto, Padova* 4: 51, 1853
- 53 Marcus, M. S.: Recherches relatives aux conséquences de l'extirpation expérimentale des poulmons. *Gaz. méd. de Paris* 3: 495 1852
- 54 Martel E.: Contribution à l'étude du traitement chirurgical. *Rev. Bibliogr. Un. de Sc. Méd.* 1: 65 1902
- 55 Mjosen Kunallg Pneumothorax ved Lungentuberkulose. *Tidskrift för den norske Læge forening* 1809: 23
- 6 Moser P.: Ueber die kalte Behandlung von Lungenkavernen. *Berlin. klin. Wchnsch.* 10: 899 1872
- 57 Ombrin V.: Left pneumectomy (Pleurum lesion with hemorrhage). *Ann. Univ. Med. Chir.* 3: 23 1855
- 58 Parker R. W.: Treatment of special cases of emphysema by thoracostomy and simultaneous injection of purified air. *Lancet* 1: 189 1883
- 59 Pepper W.: On the local treatment of pulmonary cavities by injections through the chest wall. *Am. J. M. Sc.* 61: 213 1874
- 60 Porcher F. P., and Fuyer: Exploratory puncture of a vomica in the lung with a view to its cure by injecting a solution of carbolic acid. *Virginia Med. Monthly* 9: 322 1882
- 61 Potain: Des injections intra pleurales d'air stérilisé dans le traitement des épanchements pleuraux consécutifs au pneumothorax. *Bull. M. J.* 1: 515 1888
- 62 Richard: *Neurographie Chir.* 3rd Edition. 4: 194 1881
- 63 Richter: Demerk und Lungenschacht in den gelichteten. *Göttingen Anzeiger*, Stück 23: 448 1895
- 64 Ruger L.: La tecnica di una pneumotomia nell'uomo. *Zanichelli, Bologna*, 1886
- 65 Röhle: Ueber Tuberkulose. *Verhandl. d. cong. z. innere Med.* 2: 4 1892
- 66 Saugmann: The treatment of pulmonary tuberculosis by the formation of artificial pneumothorax. *Ugeskr. f. Læger* 14: 729 973 957 1907
- 67 Schmidt A.: Intrapleural Injektionen zu therapeutischen Zwecken. *Verhandl. des Congress. Int. Méd.* 2: 330 1906
- 68 Schmid, Hans: Experimentelle Studien über partielle Lungenresektion. *Berlin. klin. Wchnsch.* 7: 767 1901
- 69 Smith R. S.: Five cases illustrating the action of intra pulmonary injections. *Brit. J. med. Chir.* 3: 164 1885
- 70 Sokolowski D.: Die Behandlung des cavere pulmonalis. *Arch. Gm. d. MEd.* 3: 107 1902
- 71 Thue: Behandlung av Lungentuberkulose. *Med. Kunsth. Pneumothorax. Norsk Magazin f. Læge* No. 1., 1909
- 72 Thuermer: De la résection du son net de poulmon. *La Semaine Méd.* 22: 1901
- 73 Waring, J. J.: The history of artificial pneumothorax in America. *Part I. Journal Outdoor Life* 39: No. 9: 345 1902
- 74 Zilno G.: Sull' estirpazione parziale del poulmone. *Glor. d. sc. med.* 7: 695 1852

ARTHRITIS AND TONSILLAR INFECTION

BY H. ARCHIBALD NISSEN, M.D.†

RECOGNITION of a problem is the first step toward its solution. Intelligent consideration of any subject assumes that the same interpretation be given to terminology by both writer and reader. In this instance three terms frequently used must be defined briefly. "Tonsils" when used refers to lymphoid tissue other than nodes, above the seventh cervical vertebra. A "focus of infection" is understood to be a locus containing bacteria or inflammatory tissue with or without the constant presence of bacteria ascertainable. "Systemic infection" may indicate general body involvement or the involvement of one or more of the various body systems. The point at issue is: Can the lymphoid tissue present above the seventh cervical vertebra be a focus, or transmitting agent for the

production of infection or disease in one or more systems composing the body structure, and more particularly in the skeletal structure? Is there immediate, delayed or constant systemic response to acute, subacute or chronic inflammatory change in lymphoid tissue? Is such response if proved, caused by direct transmission or by the production of an allergic reaction in other body tissue? For many years a large group of men especially in the United States, have considered focal infection the chief etiological factor in arthritis. In order to learn more about the association between tonsillar infection and joint disorders the author studied a group of nearly five hundred arthritic patients from this angle.*

The majority of these patients were followed at the Robert D. Brigham Hospital in Boston from 1914 to January 1924. The cooperation of the staff of the hospital enabled the author to study the records and check on the patients in making this study.

†H. Nissen, M. D., Archibald—Member of the Staff and Visiting Physician, New England Deaconess Hospital. For record and address of author see "This Week's Issue" page 10.

TONSILLAR INFECTION

There are four types of tonsillar and nasopharyngeal reactions which should be recognized by the general practitioner as well as the specialist as indicating local infection

- 1 There is the acutely infected tonsil, with or without abscess formation This is easily recognized
- 2 There is the red hypertrophied chronic tonsil with or without symptoms This also is easily recognized and is obviously infected However the individual possessing such tonsils is, often completely free from any subjective symptoms and is unaware of any relationship, subjective or objective, between his throat and joint reaction if present (There is constant absorption from such infected areas though the toxic or bacterial activity may be mild)
- 3 The third reaction is not easily recognized, and plays a most important part in connection with systemic response to its toxic irritants In this tonsil the anterior pillar, particularly the portion overlying the upper half, is a purplish red color, as are the edges of the soft palate, and at times the uvula If this throat is observed closely from time to time, the appearance will be seen to change from the dull, purplish red to a much more brilliant inflammatory shade, but with the underlying purplish tinge remaining, and becoming more pronounced. This is the type of infection in which a sore throat is rarely mentioned, unless to it is added exogenous infection Exogenous infection means an infection entering the body from without, endogenous infection, one which is carried in the body The difference between exogenous and endogenous infection is in the duration of the changed appearance of the throat In endogenous reaction, with or without joint response, the tonsillar picture subsides quickly and returns to its former chronic appearance in a day or so, the joint reaction, if recognized, is also of short duration Exogenous reaction is actually a subacute tonsillitis, or an acute exogenous infection superimposed upon a previously chronically infected, or functionally destroyed tonsil

This type of tonsil may have retrotonsillar adhesions, abscesses, or, what is more likely, under the congested discolored anterior pillar and soft palate, a single large abscessed region, or numerous small pockets, which may or may not open to the surface This is concealed in a cursory view of the throat, but if the anterior pillar and soft palate are separated, will be seen This type of tonsil is of particular importance because it may be a transmitter of direct infection, or may produce allergic reaction on the part

of the body without subjective sore throat. (This throat differs from the well known "smoker's throat", which shows obvious pharyngeal rather than tonsillar irritation) It will be recognized however only if the patient is watched day by day for some weeks, and sometimes for months It will then become evident that this discoloration in the tissue subsides, disappears, and reappears, but at all times there remains the underlying picture of chronic infection Without repeated examination it often will be overlooked or misinterpreted, though it may be an actual factor in the production or maintenance of an arthritic syndrome

- 4 The fourth type of infectious lymphoid tissue in the throat is the nasopharyngeal cavity itself, which is very often a greater source of infection than is realized If it is not examined repeatedly, as in the third type of throat, it may be considered as normal or of no importance It is due to this type of tissue that certain tonsillectomized patients continue to have their former complaints of sore throat, colds, etc with the same joint and systemic reaction This lymphoid tissue may well be considered as small atypical tonsils, subject to exactly the same infectious changes as the tonsils, and probably responsible for much the same joint reaction Tonsils when infected may be compared to lobar pneumonia, nasopharyngeal lymphoid tissue, other than the tonsils, when infected to bronchopneumonia, or many little pneumonias Cultures from the nasopharynx during infection show staphylococcus more frequently than they do any other type of bacteria On the other hand, true tonsillar infection cultures show mixed bacteria, most frequently streptococci Cultures taken at different stages of an acute tonsillitis may show a complete cycle of the streptococcal bacteria beginning with a non-hemolytic streptococcus and winding up with the same organism. Whether the staphylococcus is a pleomorphic bacterium has not been proved satisfactorily, but the direct effect of the nasopharyngeal infection, most frequently staphylococci, in chronic arthritis has not been given sufficient consideration

ARTHRITIC AND SYSTEMIC REACTION FOLLOWING NASOPHARYNGEAL TISSUE INFECTION

Recognition of infected nasopharyngeal lymphoid tissue must be followed by recognition of its influence upon the rest of the body Clinical observation and years of practice prove to the satisfaction of most clinicians what science has failed to demonstrate as yet, that is, that infection in the nasopharyngeal structures has direct bearing on changes in the respiratory tract, the gastrointestinal tract, the genitourinary tract, the skeletal structure and the homeo-

stasis of the body. Whether the first attack of tonsillitis runs the functional activity of that tonsil, with or without retention of infection is in a way beside the point, because other lymphoid tissue in the throat may be the transmitter of direct infection or the sensitizing agent for allergic reaction in other body systems.

Infection directly transmitted follows the lymphatic course forming depots in the chest with hilus gland involvement, which in turn if inadequate in their function produce local or diffuse distribution of infectious material. At any stage a few, or many, toxic elements or bacteria, may enter the blood stream producing a definite bacteremia of minor or major degree. Also at times a localized abscess may be formed which without proof of bacteremia, may serve as a source of allergic response on the part of the body. Such response may be in the form of well recognized skin reaction, urticaria or hives, angioneurotic edema, hay fever or possibly joint reaction of a type which may be termed hay fever in a joint. Allergic symptoms manifest themselves in two ways: first spasm of smooth or involuntary muscles and secondly, vascular disturbance, probably increased capillary permeability.¹ The accepted work of psychoanalysts compels one to stop and think because so many of the so-called functional disorders may be psychopathological in origin. So that allergy as such may have actually as an origin a psychopathological basis which when established will respond to correct treatment but the underlying psychopathology remain unchanged.

It is imperative therefore that intensive individual study of each patient be made in order to recognize infected lymphoid tissue and its possible association with a coincidental arthritis. Even more important however than the recognition of these two conditions is the decision as to operation, for, or against, and when. Personal experience may convince one that infection in the nasopharyngeal tissue has a definite association with the onset or exacerbations of arthritis, but further than that, experience must teach in which instance this focus of infection should be removed or in which it should not, at what time in each patient's course operation may prove of definite benefit, and at what time it may prove disastrous. The mere recognition of nasopharyngeal infection and the fact that it is definitely an extra load which has precipitated its host into an arthritic syndrome caused a recurrence of a previously quiescent disorder or pushed the patient over the border line into a downhill course is not of itself sufficient to warrant operative interference. Intelligent and successful choice of time for operation if operation is to be performed, depends upon study of each individual patient, and should include:

1 A history that is complete in every possible detail

- 2 A complete physical examination as well as repeated local examinations
- 3 Careful study of the blood and urine, and radiographic examinations of the chest, gastrointestinal and genitourinary systems as well as of the joints themselves. Such studies are essential to establish the actual condition of the patient and the differential diagnoses.
- 4 Special attention to a history of marked tissue change. Great loss of weight combined with joint symptoms must be considered as a definitely poor prognostic sign, especially in an individual in whom all forms of nutritional upbuilding have failed and in such an individual operation should not be undertaken unless there is a demand for emergency operative interference.

STATISTICAL FINDINGS OF A STUDY OF FIVE HUNDRED ARTHRITICS FROM THE POINT OF VIEW OF NASOPHARYNGEAL INFECTION

In a previous paper, a division of a group of arthritic patients by the life course each followed was made.² It was found that one of four distinct courses was followed by all chronic arthritics. In the first, termed Life Course A, the patient with the onset of arthritis dropped to a lower level of activity, remained there for a time then climbed back toward his former level and stayed at this level through the greater part of his remaining life. The second course, B, showed a life curve made up of definite periods of remission and relapse, and as the years passed the trend was gradually downwards with lengthening and more frequent periods of relapse and shorter and fewer periods of remission. Course C showed a tremendous drop in the life line over a variable period of time from the expected one hundred per cent of functional activity to a fifty or twenty five per cent level, because of extensive joint destruction and crippling and the remaining life spent at this low level, often for years. The last, Course D, showed a course which progressed steadily downward to death without appreciable remission regardless of treatment.

The first outstanding fact observed after listing these five hundred patients for statistical purposes was that in only ten per cent had tonsillectomy been performed prior to the onset of arthritic symptoms. This fact came as a distinct surprise to the author. It certainly does not corroborate the accusation frequently heard that a "slaughter of the innocents" (meaning wholesale tonsillectomy) is the rule.

Is this ratio of ten per cent of tonsillectomized patients to ninety per cent with retained tonsils merely a normal incidence? Does it indicate on the part of the average physician lack of recognition of chronic nasopharyngeal infection, particularly of the third and fourth types de-

scribed? Or does it indicate that the physician was given no opportunity to decide whether the nasopharynx was a source of infection? In any case, the mere fact that in a group of nearly five hundred arthritic patients, ninety per cent had retained their tonsils intact up to the time of the arthritic onset (and this group included patients fairly equally distributed in each decade of life) arouses one's interest in the speculation as to whether the arthritic picture would have been the same had the tonsils been removed in early childhood before the first attack of acute infectious tonsillitis occurred. Might such procedure have avoided future tonsillitis, so lessening extra loads on other lymphoid tissue in the nasopharynx? Might it later in life have eliminated the possibility of tonsils being examined and considered as innocuous though in reality they were a definite source of infection missed by the examining physician because of lack of symptoms or complaints on the patient's part and lack of repeated observation of the nasopharynx on his own part?

In the group whose tonsils remained intact at the onset of joint symptoms the most noteworthy fact was the varying association in the individuals following the four Life Courses between tonsillar infection and joint reaction. In Course B, made up largely of patients with the degenerative type of joint changes, with recurrent remissions and relapses, there was definite association between the two conditions. Repeated clinical and radiographic examinations show that there is a large number of this type of patient, irrespective of age whose bones have shown for years spur formation, thickening of capsule, etc., but without symptomatic recognition or actual functional impairment. Such patients at times show a systemic response or reaction to upper respiratory and tracheobronchitic infections, in the form of joint stiffness, swelling, pain or discomfort. Prior to the initial response on the part of these degenerative joints to tonsillar infection, the patient may have, and probably has, experienced innumerable similar infections but without recognized systemic reaction. This reaction when noted, probably indicates extraneous infection, exogenous in origin, different from any former infection in the body of that patient, for which ample antigen had been heretofore manufactured. With a single such irritant in an individual with degenerative tissue change the nasopharyngeal infection and the joint reaction are likely to subside more or less simultaneously. If however there is a history of marked fatigue, exhaustion, loss of sleep, and worry in addition to the exogenous infection, the individual may react to his own infection, previously held in control or check, and may develop a more prolonged joint reaction lasting as a rule six weeks to three months.

In Course C there was the most marked inci-

dence of patients giving a history of repeated sore throats, colds, or tonsillitis throughout life prior to the onset of arthritis, or a history of the onset of arthritis occurring during such nasopharyngeal infections, and of the recurrence of attacks, or acute exacerbations with succeeding tonsillar attacks. There was also in this group the most frequent story of gradual subsidence of acute nasopharyngeal infection in later life after the patient had reached his low C-level of crippling, though in 59 per cent the tonsils were still intact at the time this study was made, or at the patient's death. In the 41 per cent of Course C patients whose tonsils were removed at some time following the onset of arthritis, a large per cent gave the story of a precipitant downhill course after operation. In short, the most definite association between tonsillar infection and joint reaction occurred in the group of arthritics whose arthritis was the most severe and disabling. The question arises whether this group of individuals was inherently of poorer tissue and less able to carry the extra load of infection, or whether the load itself was greater than that handled by those whose arthritis responded more readily to treatment?

TREATMENT OF NASOPHARYNGEAL INFECTION IN THE ARTHRITIC

The combined efforts of the physician following the patient and the otolaryngologist are needed in the wise decision as to operation, the optimal time for operation, and the best form of local treatment when operation is contraindicated. If however the services of an otolaryngologist are not available, for the time being the physician in charge must be prepared to administer palliative treatment of infected lymphoid tissue until the patient can be placed under the care of the specialist. For many reasons it may be found that a fairly large number of arthritic patients with infected lymphoid tissue will have to be taken care of by their own physicians. For the help of such patients the following aids are suggested to the general practitioner.

Local Treatment

For the chronic type of lymphoid tissue irritation or infection without subjective symptoms

- 1 Application of Methylene Blue Powder, USP Medicinal No 9, to the posterior pharyngeal wall once a day. A small amount on an applicator is sufficient. The patient's mouth should be held open. He should breathe without swallowing until the methylene blue is absorbed, and is in contact with the posterior nasopharyngeal wall and with the posterior portion of the nares of the nose. Five minutes after installation the patient may be allowed to

swallow or expectorate what methylene blue in liquid may remain

This application should be made daily the first week during an acute flare-up of nasopharyngeal inflammation, three times the second week, twice the third, and once a week thereafter. This procedure in itself will produce a shrinkage of inflamed engorged lymphoid tissue and at times appear to be more than a local superficial germicide. Obviously it is absorbed, because the urine will usually be blue or bluish green following local administration of methylene blue

- 2 If there is nasal congestion with inflamed turbinates it is wise to use in addition one of the recognized vasoconstrictor preparations.* It may be applied on a small pledget of cotton on the end of an applicator or the pledget may be introduced directly with nasal forceps, using a nasal speculum so it can be placed in the nose well back toward the nasopharynx and extending as far upward against the septum as possible. If such pledgets saturated with a vasoconstrictor solution, are introduced into each nostril and allowed to remain for five minutes marked increase in the ease of breathing and comfort will follow. This treatment should be repeated frequently enough and for a long enough period of time, to ensure continued free and easy breathing. If there is sufficient congestion to impair breathing through the nose, short temporary periods of relief are not sufficient. Obstruction of air passages resulting in constant blowing of the nose or sniffing with consequent irritation of the membranes is likely to spread the infection to the Eustachian canals involving the middle ears, or to the sinuses and ethmoid cells. It also means that the patient will breathe through his mouth if nose breathing is impossible. This produces, particularly during sleep, a dryness of the posterior pharyngeal wall, definitely impairing or lessening its normal function. In other words, whatever treatment is used to maintain free nasal breathing must be repeated as often, and continued as long as is indicated subjectively and objectively. For this reason it is essential that the patient be taught to apply as much of the treatment to himself as he can, having been taught first to recognize the signs of infected lymphoid tissue in his nose and throat.

These procedures are applicable to all four types of infected tissue described, but particularly to types three and four, because these

*Neo-Synephrin Hydrochloride Emulsion has proved most satisfactory if the directions outlined above are followed.

are the ones with which the patient is least likely to complain of a sore throat.

General Treatment

For general treatment in connection with the foregoing local treatment, vaccines antigens and bacteriophage have a definite beneficial action in certain cases in spite of all that has been written and discussed in regard to contraindications. In those people with degenerative joint changes, who complain of recurrent attacks of stiffness occasional swelling redness and pain about a joint, culture from the nose and throat or from sputum, if raised, will frequently show the predominating organism to be streptococcus, staphylococcus or a mixture in the more chronic type of throat infection and with hypertrophied lymphoid tissue. Subcutaneous injections of staphylococcus bacteriophage, one cc repeated in forty-eight hours, once a week may often prove of definite value. In others, antigens and vaccines (stock or autogenous) injected subcutaneously every fourth day are beneficial. The dose should be small enough not to produce a localized red area of inflammation at the site of injection or generalized systemic reaction. The so called hypertrophic arthritis, or the one whom I prefer to term one of the degenerative tissue type individuals without definite destruction but rather with inflamed or tender soft tissue surrounding a joint, will respond best and derive the greatest benefit from such treatment. Many times instead of going through the expected six weeks' to three months' course of disability, the condition will clear up in a shorter time. In other words, the hypertrophic patient with his flare ups, which really constitute a large part of the general practitioner's arthritic experience, is not exhibiting the acute exacerbation of a genuine arthritis, but rather a soft tissue reaction either toxic in origin, or allergic, each directly responsive to blood or lymph borne infection in terms of bacteria invading the structures in or about joint tissue.

For the patient's comfort and for lessening stiffness of joints due to soft tissue congestion or constriction about joints, Empirin Compound which is made of $3\frac{1}{2}$ grains of aspirin, $2\frac{1}{2}$ grains of phenacetin, and $\frac{1}{2}$ grain of caffeine seems to be tolerated the most readily, and if given in sufficient dosage will lessen the stiffness and pain with very measurable objective evidence of salicylic action, that is increased warmth locally to the part involved in a flare up and increased local perspiration over it. It would be interesting to determine how many people in the United States depend upon one of the many salicylic preparations, alone or in combination with other chemicals in order to get started for the day when at the time of wakening in the morning they have stiffness swelling

and some pain due to degenerative tissue changes. It is a definite clinical observation that these patients with degenerative tissue changes and no evidence of destructive arthritis derive distinct relief from vaccines, antigens, bacteriophages, more than from any other one product of the salicylic preparations.

In recommending this last medication it is taken for granted that the physician appreciates the fact that if any gastric discomfort follows the ingestion of salicylic acid products, half a teaspoonful of soda bicarbonate in water taken at the same time, will offset this disagreeable reaction without changing the therapeutic value and action of the salicylic acid. It is also stressed that prescribing a dosage sufficient to give the patient comfort and relief is recommended primarily for patients who are ambulatory and whose disease is presumably in a quiescent stage. The same dosage given a patient in an acute stage of genuine arthritis who should be bedridden might be definitely detrimental should the comfort and relief from pain resultant from large doses of salicylic acid preparations be the means of keeping him ambulatory, thus damaging inflamed joints which should be at rest.

This local and general treatment are of course coincidental. It should be repeated that treatment of infection in tonsillar tissue by the clinician should be only temporary pending consultation with, and advice from, the otolaryngologist. If distance makes such consultation necessarily a single one, or purely for operative interference, it is most desirable that the man in charge of the case accompany the patient and explain his own studies and case history to the specialist or if this is impossible, send with the patient such detailed information. While the practitioner is dependent on the specialist for advice on local conditions, the specialist is equally dependent on the clinician for complete information about the patient, information vital to wise decision, and impossible to secure in a single visit, or even in several visits.

CONCLUSION

Even without recognized association between upper respiratory tract infection and joint infection, such association may be present. Proof of this depends on intensive study of the individual to determine three factors:

1. Recognition of obvious and concealed chronic infection in the nasopharyngeal tissue. The two most common are unmistakable, the acutely infected tonsil and the red hypertrophied chronic tonsil. The third is possibly of greater importance, and is often missed unless the patient is seen frequently, and the appearance, subsidence

and reappearance of signs of infected lymphoid tissue are noted. On examination of this type of throat a purplish red discoloration is seen on the anterior tonsillar pillar, along the edges of the soft palate and at times in the uvula. These local changes are constant to a certain degree (the dusky discoloration being present at all times), but show varying reaction to exogenous and endogenous infection. During such reactions the tonsillar poles become prominent and more inflamed, but this is noted only if the upper part of the tonsil is exposed. The duration of the reaction is short if the excitor is endogenous, long if of exogenous origin.

2. Recognition of joint and other systemic infection. This depends on thorough physical, laboratory and radiographic examinations.
3. Determination of association between local and joint and systemic infection by extensive and prolonged study of each individual patient.

Man apparently follows roughly four natural Life Courses from birth to death. Study of a large group of patients with various chronic diseases, including arthritis, will show them to follow four life courses similar to the natural courses but more exaggerated in their variations. The author has called these Courses A, B, C and D and described each. The ability to estimate the future Life Course of one's patient will prove of great value in determining the best procedure to adopt when nasopharyngeal infection is present. Generally speaking, if a patient presents himself with combined nasopharyngeal and arthritic infection, having had no operation performed previously on the tonsils, the author believes the lesser of two evils, —i.e., removal of tonsils as a possible focus of infection with the risk of disaster, or leaving them intact as a constant source of infection via drainage with equal possibility of disaster, —is removal. Success or failure following such removal depends on the time chosen for operation. If good chance (or good judgment) makes the time tonsillectomy is performed opportune, the result will be beneficial to the patient. This is the point on which attention should be focused, and more certainly as to this crucial time gained. Roughly speaking, in an adult, one must expect about a year to elapse before judgment of good or bad results of operation can be made. In an arthritic it should be performed when both the nasopharynx and the joints are as quiescent as possible, when the patient's resistance and general health have been raised to the optimal level, and only if the patient shows periods of such quiescence and meas-

urable improvement. In an arthritic who appears never to reach even a short period of quiescence of joint disease, or of general improvement, in one who is markedly undernourished and who cannot be made to gain weight, tonsillectomy is never indicated. Attempt to control nasopharyngeal infection by various remedies in such instances is described. Thus non-operative policy is also indicated in any individual who is believed to be following Life Course D, as any operative interference on one in this group appears to be disastrous.

Wise decision between operation and conservative treatment of nasopharyngeal infection depends wholly on the individual patient in ques-

tion. Without a thorough knowledge of him and of his psychology and physiology the outcome is pure chance, and science will continue without proof of the relationship between tonsillar infection and rheumatic disorders. For the present one must be contented with continued careful observation of the operated patient and be guided by clinical observation until it is substantiated by scientific corroboration.

REFERENCES

1. Feinberg, Samuel M.: Allergy in General Practice. Philadelphia: Lee & Febiger 34 50
2. Nielsen, H. Archibald, and Spencer K. A.: Arthritis and systemic involvement as exemplified in a group of dead arthritics. *New Eng. J. Med.* 216: 147 (Jan. 18) 1934
- Nielsen, H. Archibald: Chronic arthritis and its treatment. *New Eng. J. Med.* 19: 1108 (May 24) 1934

VERMONT STATE MEDICAL SOCIETY

OBSTETRICAL COMPLICATIONS*

BY JOHN M. BERGLAND, M.D.†

THE topic assigned to me was "The Complications of Pregnancy." You will grant that that is a pretty large subject for a tired man and for a tired audience as well, I will therefore, talk only on one or two of the actual complications of pregnancy, and these are included in the group known as the toxemias of pregnancy. The term toxemia covers a multitude of sins and many of the authorities disagree as to its proper classification. It is, practically speaking, one of our most important subjects when we consider that some 15,000 young women die every year in the United States alone.

ULTIMATE DIAGNOSIS TOXEMIAS
OF PREGNANCY

Type	No. of Cases	Per Cent
Vomiting	30*	7.35
Eclampsia	35*	8.58
Preëclampsia	50	12.25
Low Reserve Kidney	148	36.27
Nephritis	137	33.53
Unclassified	8	1.98
	408	99.99

*Estimated on basis of percentage of other cases traced.

FIGURE 1

of obstetrical complications and accidents. The second commonest causes of death are the toxemias of pregnancy and realizing that most of my audience are general practitioners who have to take obstetrical cases as a matter of routine, I believe we can spend a short time profitably on this topic.

Read at the Annual Meeting of the Vermont State Medical Society, Burlington, October 4, 1934.

†Bergland, John M.—Acting Professor of Obstetrics, Johns Hopkins University. For record and address of author see "This Week's Issue" page 1037.

This table (figure 1) shows the incidence of the various types of toxemia as classified in the textbook of the late Whitridge Williams. We realize that the classification is open to argument and criticism but so far we have seen no reason to change it. A great many writers do not believe that there is such a pathological entity as a low reserve kidney, but we feel that the condition exists and should have a distinct place in our classification. The topics I am going to speak about to-day are those of low reserve kidney, preëclampsia, and eclampsia, and I shall emphasize particularly our treatment of these conditions.

MATERNAL AND FOETAL MORTALITY
IN THE TOXEMIAS OF PREGNANCY

	Maternal	Foetal Incl Abortions
Vomiting	* 00	54.55
Low Reserve Kidney	0 00	9 46
Preëclampsia	0 00	17 66
Eclampsia	11 02	39.37
Nephritis	4* 53	25 49

Deaths from nephritis within 10 years of delivery

FIGURE 2

Figure 2 shows the maternal and fetal mortality in the various toxemias. You see that nephritic toxemia leads the list but the death rate is high because of the number of patients that die some years after they are delivered. We follow up our patients who have suffered with toxemia through a special dispensary clinic, and we are able in most cases to insure their attendance at the clinic through the efforts of the social service department.

Now let me say a word about low reserve kid-

cal care, (2) with the better distribution of sickness risks, and (3) with a new plan of administration of the various insurance carriers *

(1) *Prevention* The field of preventive care in Germany has in the past suffered from a great deal of overlapping among the various insurance branches, mainly health insurance and annuity insurance† The administrators of the latter discovered in the years of its early existence that it cost the insurance fund less money to prevent invalidity or to rehabilitate patients than to pay them an annuity for an indefinite number of years To be sure there was also a humane motive behind the actions of the insurance executives, but in the main, the business principle of least cost for maximum results prompted the establishment of preventive work which through recent decades has been extended rapidly

Health insurance lagged behind in the application of preventive measures, although some individual insurance bodies, especially a few large ones, did excellent work in this field Referral of patients to the medical agencies of the annuity insurance was another means which was used by the health insurance carriers to some extent for patients who were entitled to the services of the other insurance offices

Both annuity and health insurance were interested in the prevention of chronic and incurable illnesses, and in persons requiring prolonged treatment, mainly for tuberculosis In most cases, the insured person was a member of both insurance groups and thus entitled to the services of both A final answer regarding the assumption of responsibility for such a patient was often delayed, because of the overlapping of the scope of these insurance branches Furthermore, most health insurance bodies were handicapped in the establishment of preventive and rehabilitative work because of lack of funds Rehabilitation work especially, requires a prolonged treatment and consequently a good deal of money and cannot, therefore, be undertaken by organizations with a small number of members and necessarily limited funds

The new law seeks to remedy another situation, namely, the disadvantages which grow out of the existence of the large number of locals, many of small membership This condition made it difficult to carry through programs requiring action upon a community basis The new law makes preventive work the joint responsibility of all the health insurance and the annuity insurance organizations of a given dis-

*The term carrier is used to denote the individual insurance body, either a district office or a local office For want of a better term we shall call the local organizations of the health insurance locals Frequently these organizations have been called funds a somewhat literal translation of the German term *Kassen* Since the English word fund has an entirely different connotation than the German *Kassen* it seems advisable not to use this term.

†The annuity insurances comprise (1) invalidity and old age insurance (2) salaried employees insurance (invalidity and old age)

trict Attempts were made in the past to promote such work by voluntary associations of health insurance carriers and other interested public bodies These efforts, however, rarely went beyond printed statements The agencies concerned with the problem usually did not progress beyond an expression of their intention to cooperate Their cooperation has now become compulsory The executive agency for such a district will be a new type of district insurance office It will have jurisdiction over all matters of invalidity insurance, and the preventive and rehabilitative work of the sickness and annuity insurances Boundary lines between health and annuity insurance for the whole important field of preventive work are thus wiped out, for the benefit of the insured as well as in the interest of both types of insurance carriers The scope of work of most health insurance organizations is thus greatly enlarged The cost of the work will be borne jointly by all member organizations

A new emphasis upon preventive work also is apparent in the legal provision for a general health program which is to be developed by the District Office The entire field of preventive work, for the insured as well as for the non-insured population, will thus be the responsibility of one executive agency

(2) *Better distribution of risks* The diversity of health insurance organizations has had the further disadvantage of preventing a fairly even spreading of insurance risks It is a well known fact that the risk of sickness varies with the occupation and with the income level The existence, for example, of special insurance organizations for salaried office employees, removed from the General Locals a group of people whose contributions fall within the higher brackets and whose risks of sickness are relatively less than those of industrial workers and similar groups, thus weakening the status of the General Locals

Medical care for the members of the family of the insured has, in recent years, been made compulsory under the German law Consequently, the number of members with families influence directly the expense for medical care and indirectly the amounts of contributions needed to balance the budget In other words, organizations which have a predominance of married members, and consequently higher cost for medical care, would tend to be forced to increase their income by exacting higher contributions from their members, thus adding further to the financial load to be borne by heads of families, while, on the other hand, members of locals with a large number of single persons, like the locals of the salaried office employees, carry a much smaller burden

The distribution of the risk of sickness is further affected by the differences arising out of certain types of occupation, e g, the high sick

ness risks of the miners Under the new law a common fund will be established to overcome these several handicaps, to assure a more even distribution of risks, and consequently a more even distribution of size of contributions. Each health insurance carrier will be required to pay a certain percentage of its income into this common fund*. A maximum limit will be set for such payments. The fund will be administered by the District Office.

(3) *Administration of the Insurance Carriers* Under the old law the insurance system adhered to the principle of self government on a democratic basis. The administrative bodies of each carrier were committees elected by vote of the constituent members and of their employers. Both parties were represented in the executive committees.

The National Socialist theory of administration rests upon the principle of "leadership" and has substituted individual "leaders" for the democratic committees. Executive power is conferred upon one man, who must answer for his acts only to his superiors and who is responsible for the deeds of his subordinates. The leader is appointed by a superior officer; he is not elected as was the case under the former rules. He can be removed from his post by his superior officer, but not by popular vote.

The Reichsversicherungsamt in Berlin is the highest office in charge of the social insurance system. Appointment of leaders is made by a superior officer depending upon the type of carrier, e.g. leaders of General Locals will be appointed by the leader of the District Office; the Minister of Agriculture will appoint the executive of rural locals and so forth. Thus a complete hierarchy will be established throughout all administrative levels. The councils of each insurance carrier, whose functions will be discussed later, will, however, have the right to suggest for the position of leader anyone whom they think to be especially well qualified.

This new system may be benefited by all the advantages and fraught with all the dangers of a semi-dictatorship. Much if not everything will depend upon the selection of the leader. On the other hand the one man principle presupposes the existence of an aristocracy of leaders of men with great vision of a high degree of personal integrity having executive ability and being guided by an innate liking of their fellow beings. They must be able to find the real source of their strength and their power mainly in themselves. They cannot look to committees and political parties for moral and material support. Neither will they have the benefit of criticism and opposition which their predecessors found under a democratic system.

Under the new law the executives are to be aided in their work by an Advisory Council which will be established for every carrier. This

main purpose of the Council will be to serve as a consultant to the leader of the insurance carrier. Other duties may be imposed upon it in the future by the Minister of Labor. It is impossible to say exactly what its final tasks will be until the current work on the new communal law is completed. It is fairly certain, however, that the council will serve in particular as a consulting link between the insured population and its insurance office. It is, therefore, of interest to know what elements are represented in the Council. The law declares that it shall include representatives of employers and employees, a representative of the local administrative authority and a physician.

Employers and employees will be represented in equal number*. They will be appointed by the superior office on the basis of suggestions made by their respective organizations. Only employers whose employees are members of the respective locals are eligible to membership.

New and of far reaching consequence is the addition of a physician to the Council. Its import may be considered from two angles. In the first place it represents a victory for the medical profession which for decades has fought for such representation. The claims of the physicians that the directing of medical care should be in the hands of medically qualified people have thus been recognized. The present arrangement for council constitution appears to approach the ideal by giving all groups interested in the providing and dispensing of medical care, the opportunity of voicing their opinions.

In the second part of the July code, which bears the title, "Reasons for the Enactment of the Law," there are contained a number of important statements of aims and policies. Mr. Hitler points out that the importance of preventive and curative medical work of the health insurance system has been and is steadily increasing as compared with cash benefits, and that as a consequence the responsibility of the medical profession has been and is growing steadily. He goes so far as to state that the success or failure of the task of the health insurance system rests with the German physicians. Their representative is expected to occupy the council seat, not—if the term may be permitted here—as the trade union delegate of his professional group, but as the representative and guardian of the health interest of the entire German people. This statement is important. It implies that the general health level of the population depends largely upon the medical services rendered under health insurance.

The representation of equal numbers of employers and employees in accordance with the new distribution of contributions between employers and employees. The present system which demands of the employer one third and of the employee two thirds of the contribution will be changed to equalize the burden. The government believes the employers to be able to bear the increased burden.

It should be remembered that under the old system every local organization administered its funds independently.

II

The second main group of changes is in accordance with the new position of the physician in the administration of health insurance. They contain the right of the profession as a whole to govern the admission of their colleagues to health insurance practice, and their remuneration for services rendered.

These new decrees of the Minister of Labor appear to be an attempt to utilize the experiences of the past. Germany was the pioneer in the field of health insurance. In 1883 there existed no empirical basis on which to build a comprehensive law. Neither the Health Insurance Act of 1883, nor the subsequent code of 1911, laid down in definite terms the status of the physician as affected by the various functions of the law, nor did they regulate the relationship between physicians and insurance carrier. Section 368, of the Reichsversicherung Ordnung, states only that the two parties may deal with each other on the basis of private contract. Nobody apparently foresaw in the early years of sickness insurance, the tremendous expansion of medical care in the decades to come. Neither the government, the carriers, nor the physicians themselves were aware of the consequences and complications which were to arise out of the existence of the law and the absence of definite regulations regarding the status of the physician. These complications were increased by the changes in economic, industrial and social organization, as well as by the remarkable development of medicine itself. A detailed discussion of the difficulties, of attempts to solve them and the means used is beyond the limits of this article. It must suffice to say that the major efforts of the physicians were concerned with gaining control over medical insurance practice. They argued that only the medical profession itself was in a position adequately to judge the work of the physicians. Their aims included the control of the admission of physicians to health insurance practice, the methods of remuneration for medical services, the question of "free choice of physicians" by the patient, and the supervision of the medical services rendered.

Similar to developments in industry, the physicians formed an association for their protection. Dr. Gustav Hartmann was the leader. The organization which he founded in 1900, and whose official name was the "Verband der Aerzte Deutschlands" has been better known under the name of its founder, "Hartmannbund."

The sickness insurance carriers also formed national organizations, not only for their dealings with physicians, but for the study and advancement of their mutual interests.

The exercise of the professional functions prescribed by the new decrees presupposes the ex-

istence of a professional organization ready and able to assume such responsibility. This organization is the *Krankenkassenärztliche Vereinigung Deutschlands* (KVD of Sickness Insurance Physicians in Germany). Originally developed out of local medical associations which were formed under a provision of the old Insurance Law (Section 368-A), its status was changed by the government decree of August 2, 1933, from a private organization to a corporation of public law with the prerogatives attached to such a status, especially the right to issue, within the limits of its field, rules and regulations which have power equivalent to legal ordinances. The old professional organizations, the *Deutscher Aerztevereinsbund*, and the *Verband der Aerzte Deutschlands* (Hartmannbund) were dissolved by the recent decrees. The KVD is now the only representative of the physicians in the "corporative state." It is responsible for the professional aspects of rendering medical care to the population at large, not only to the insured population. Membership in it is compulsory for every physician engaged in health insurance practice. The association will become part of the proposed National Chamber of Physicians as soon as such a body is established. It will not, however, lose its separate identity and public character.

Under the new arrangement the KVD assumes full responsibility for the provision of an adequate number of physicians. It also has the right to supervise the professional work of its members. One of the main causes of disputes between insurance carriers and physicians has thus been abolished.

Admission to practice under the health insurance law is redefined by one of the decrees as being the right and the duty of a physician toward the KVD to participate in the medical care of the insured population. It should be noted that the physician is directly responsible to his professional organization.

This principle underlies also the making of contracts. Formerly, every physician entered into direct, individual contractual relationship with the insurance local. Not so now. His professional organization, through its local bodies, will close the contract. Instead of the former right of an individual physician to close a contract for medical practice with a health insurance carrier, there exists now a mutual obligation between the physician and his professional organization. Both parties are bound by rights and duties.

The personal qualifications required of the physician applying for insurance practice are in accordance with the National Socialist policy, the requirements of which are set forth in the Civil Service Acts of 1933. The applicant must be a German citizen, must be in the possession of full civil rights, and must not be of Jewish

descent or married to a person of such descent. The requirement of medical practice after ap probation is reduced from three to two years. Several types of practice will be recognized in fulfillment of this requirement. At least three months' work in rural areas is compulsory. It may be performed either as substitute for a physician having his practice there or as his assistant. The theory behind this prerequisite is the same as that behind the one requiring the applicant for the State Board Examination in jurisprudence to work in labor camps for a period of six months, namely, to give the young graduate an opportunity to mingle with all sorts of people in everyday life and thus, not only to broaden his general education, but also to assist him in gaining an understanding of the psychology of the people with whom he will have to deal in his later practice, and to at tempt to bridge the existing gulf between the classes and between town and country. For the same reason, medical service in labor camps will be recognized as partial fulfillment of the re quired two years of practice. Such residence is not compulsory for the young physician. He must, however, not later than six months after his appointment, attend a course in medical in surance practice. These courses will be given by his professional organization.

In addition to these general requirements cer tain conditions are mentioned as entitling an ap plicant to special consideration. Preference in admission to health insurance practice is to be given to married physicians with children. Physicians with children of school age will be preferred for appointments to positions in towns which offer educational advantages provided that the applicant practice at least five years in a small town or rural community. Sons of physicians who desire to take over the practice of their fathers are to be allowed to do so.

Another means for the promotion of the wel fare of the family is to be found in the estab lishment of a common professional fund.* The physicians' association has the duty to divert a certain percentage of the payments for medical services to a reserve fund†. One of the purposes of the fund is to provide additional remunera tion if needed for physicians with larger fam ilies.

The distribution of physicians throughout the country is another element in the planning program of the new law. The entire country is divided into medical districts as determined by the physicians' association. The confusion which existed in the past with regard to the number of available applicants is to be elimi nated by permitting each applicant to register

for admission in only two districts instead of giving him the right to an unlimited number of registrations as was the practice under the old law. The old basis of one physician to six hun dred insured is in general maintained.*

Special provisions are made for over supplied and under-supplied districts. In the former, the number of physicians will eventually be re duced in order to assure a livelihood for every one. In the latter, more physicians are to be appointed. The common principle to be consid ered in both cases will be the provision of ade quate medical care everywhere.

Under a system of absolutely free competi tion, economic and educational considerations attracted a large percentage of physicians to the cities. The population of sparsely settled rural areas, although insured, was often left without medical care. Distance handicapped the patient from reaching a physician, while the latter had difficulty in extracting a liveli hood from a practice which imposed upon him much greater hardships and sacrifices than were demanded of his more favorably situated col leagues in the towns and cities. To assure an adequate income to rural physicians, especially in areas where the small number of inhabitants are unable to support such services adequately, will be the second purpose of the common fund.

This new scheme will receive additional im portance with the execution of the government's plan to extend the establishment of small home steads in the rural sections of the East of Ger many and on moorlands which are being re claimed.

An attempt to bring about a better distribu tion of physicians in rural areas by the provi sion of adequate incomes is paralleled by ef forts to affect a better distribution of profes sional incomes in cities and towns. A general curbing of excessively high incomes appears to be intended and is to be accomplished by the use of graded rate scales. The rate of payment is to decrease with the increase in the number of patients. The habit of some physicians to assume responsibility for a much larger num ber of patients than they can handle adequately is thus to be guarded against.

CONCLUSION

The recent changes can be best understood in the perspective of the historical development of sickness insurance in Germany. The first German sickness insurance law enacted in 1883 was put into effect by a Chancellor of the old monarchy, largely as a means of counteracting the growing Socialist party. The German So cialist party for a long time did not favor it, but finally made the policy its own. Sickness

*Under the new arrangement the insurance carriers make payment for medical care only to the physicians' association, which in turn remunerates its members for their services according to a plan worked out by the association and approved by the Minister of Labor.

†Decree of the Minister of Labor February 2 1934.

In considering the rate of insured to physicians it should be remembered that a large percentage of the insured have a family which under the existing law is entitled to medical care. The actual number of prospective patients exceeds therefore, the 600 limit by a large margin.

insurance was steadily extended to a larger and larger proportion of the population, and after about twenty-five years, to most of the workers in agriculture and to domestic servants. In 1911, a general codification of the numerous social insurance laws was made leaving the provisions for medical care intact. The World War inevitably endangered the financial situation of health insurance, but medical care continued to be provided and in many instances was even extended during this period because of the greater needs of the population.

In 1918, after the overthrow of the monarchy, the Social Democratic party came to power, the same party which had opposed the sickness insurance law of 1883. Sickness insurance, however, was not curtailed but was still further extended by utilizing the war time experiences, especially in the field of maternal health. Then the period of currency inflation followed, destroying the savings of all individuals and organizations. Since sickness insurance does not require the accumulation of large reserve funds, it was much less affected than were the insurances for old age and invalidity, which depend upon accumulated reserves. Inflation necessarily brought great hardships, but those falling upon physicians and insured persons were no greater than the sacrifices required of the majority of the German people. The work of sickness insurance continued through the period of inflation and the subsequent period of stabilization, beginning in 1924, and through the serious economic depression following the year 1928. The scope of medical care was even extended in this period, when in 1930 medical care for the dependents of insured persons was made compulsory. Up to this time it had been

voluntarily rendered to a large majority of the people.

The second political revolution, beginning in 1933, when Hitler came to power, is leading to great reorganization of the social, legal, and economic systems in Germany. But again the laws and decrees which have been described in this article show that the changes made by the National Socialist régime in 1933 and 1934, maintain the essence of the system, remove much of the patchwork accumulated through the years, particularly during the economic depression, and make administrative changes with the aim of a better distribution of risks and a simplification of administration. Many of these changes had long been advocated by German experts on the subject. Medical service as provided under the old law remains without curtailment, and its scope is extended to include prevention and rehabilitation on a scale larger than ever before.

A system of furnishing medical care which has lasted through two political revolutions and the great economic changes of the last fifty years, which has been steadily extended during this period, would seem to possess elements of inherent stability. It would seem to have answered a definite need of the people and given a substantial degree of satisfaction. Finally, it is highly significant that the medical profession has been given a more definite and distinctive participation in the conduct of sickness insurance than it has possessed in Germany up to this time. Only time will show how these changes will work. The outlook for their success seems hopeful, since most of the changes appear to be the outcome of long-range historical forces.

A STUDY OF HEART DISEASE AMONG VETERANS*

IV An Analysis of the More Frequent Types of Anatomic Heart Disease

BY PHILIP B. MATZ, M.D.†

THIS section of the study includes the discussion of the following anatomic types of heart disease: arteriosclerosis, enlargement of the heart, cardiac hypertrophy, chronic myocardial disease, and valvular heart disease.

ARTERIOSCLEROSIS

Arteriosclerosis is a disease of the blood vessels which is found with increasing incidence and severity in old age, although it is frequently found in middle age and in youth. No definite knowledge of the true nature of arteriosclerosis or of the factors which play a rôle in its etiology are known.

*From the Research Subdivision, Medical and Hospital Service, Veterans Administration.

†Matz, Philip B.—Chief, Research Subdivision, Medical and Hospital Service, Veterans Administration, Washington, D. C. For record and address of author see "This Week's Issue," page 1057.

Klotz and Manning as well as Zinserling hold that the fatty streaks present on the intima of blood vessels are forerunners of arteriosclerosis. Ribbert on the other hand is of the opinion that these fatty spots may be seen in arteries of normal human beings from early youth to old age, and that they are due to a physiological absorption of lipid material. According to Zinserling they bear no relation to the presence of infectious diseases, and are due to a number of factors, such as cholesterolemia, mechanical influences, and inherent conditions of the walls of the affected blood vessels.

Anitschkow in 1925 held that atheroma in man was primarily due to impregnation of the intima with lipid material. This investigator showed by experimental methods that the feeding of animals with cholesterol resulted in

CARDIAC HYPERTROPHY

Ophüls holds that cardiac hypertrophy is commonly seen in generalized arterial disease, and in general arteriosclerosis. This observer also maintains that cardiac hypertrophy is a frequent accompaniment of essential hypertension. The presence of cardiac hypertrophy in cases of general arteriosclerosis is regarded by Ophüls as evidence of the previous existence of hypertension for a sufficient period of time to produce hypertrophy of the heart. This observer further holds that cardiac hypertrophy is much more likely to occur when the arterial disease is associated with serious diffuse disease of the kidneys. Norris⁴ states that when hypertrophy is due to an obstruction to the outflow of blood simple hypertrophy is induced when it arises from diastolic overfilling hypertrophy and dilatation occur. Hypertrophy affects only such parts of the heart musculature as are actually called upon to do extra work. In addition to the causes of cardiac hypertrophy already mentioned valvular heart disease and increased work of the heart are frequent etiological factors.

Certain of the valvular diseases have characteristic effects upon the heart, for instance mitral stenosis affects the left auricle and the right ventricle, aortic regurgitation and aortic stenosis affect the left ventricle. A number of observers are of the opinion that hypertrophy of the heart may infrequently be found without any apparent underlying cause.

Among 433 cardiac patients it was found that 107 or 24.7 per cent showed evidence of hypertrophy of the heart. A study of these cases according to the etiological type of heart disease indicates that thirty-six or 33.7 per cent were arteriosclerotic heart disease, thirty or 28 per cent were classified as rheumatic heart disease, seventeen or 15.9 per cent were syphilitic heart disease, twelve or 11.2 per cent were patients with heart disease due to infectious diseases, and six or 5.6 per cent were hypertensive heart disease. The remaining number gave evidence of various etiological types of heart disease.

A number of anatomic lesions of the heart were noted as coexisting with cardiac hypertrophy. The most frequent of these were arteriosclerosis, chronic myocardial disease, aortic insufficiency, mitral insufficiency, and mitral stenosis.

The most common coexisting abnormal physiologic conditions of the heart in the group of 107 cases of cardiac hypertrophy were hypertension, aortic incompetency, sinus tachycardia, mitral incompetency, congestive heart failure, hypotension, and chronic auricular fibrillation.

It was further noted that chronic renal disease was the most common disease outside the

cardiovascular system coexisting with cardiac hypertrophy.

CHRONIC MYOCARDIAL DISEASE

There are two anatomic types of chronic myocardial disease: first, myocardial disease due to inflammatory injuries. The lesions of this type may be exudative or proliferative and may either be confined to localized areas or scattered profusely throughout the musculature of the heart. This type of myocardial disease is characterized by exudation around the blood vessels which is followed by scar tissue formation in the periarterial areas when the lesions heal. The second type of myocardial disease is a fibrosis. It is purely a degenerative process characterized by the presence of scars, and atrophy of the muscle fibers with replacement by fibrous connective tissue. The latter type is usually due to coronary sclerosis.

DePorte⁵ in a study of a group of cases of chronic myocardial heart disease found that the principal etiological factors of the inflammatory type were the various acute infections including rheumatic fever. The degenerative type of chronic myocardial disease characterized by fibrosis was due to such conditions as thyroid disease, hypertension and arteriosclerosis.

Ophüls¹ in commenting on the relationship of arteriosclerosis and disease of the coronary arteries to myocardial disease found that there were two possibilities. One in which the coronary arteries became entirely obstructed by thrombosis with the development of large necrotic areas or scars in the myocardium. The second group in which the coronary arteries were narrowed thus cutting off the blood supply and resulting in small areas of fibrosis in the heart musculature. In the latter group hypertension was a frequent coexisting condition.

Krumbhaar⁶ is of the opinion that any condition which interferes with the normal supply of blood to the heart results in muscle degeneration followed by replacement with fibrous connective tissue. It is the opinion of this observer that arteriosclerosis and uncompensated cardiac valvular disease are two frequent causes of chronic myocardial disease.

Chronic myocardial disease is a very frequent finding both clinically and at postmortem. Thus DePorte⁵ found 528 or 28.9 per cent of 1826 cases of heart disease in New York State with evidence of damage to the myocardium. Haven Emerson found that 1966 or 43 per cent of 4566 cardiac patients gave evidence of myocardial disease.

Among 433 cardiac patients in this study it was found that chronic myocardial disease was present in 194 or 44.8 per cent of the group. A compilation of these cases according to the etiological type of heart disease shows that sixty-nine or 35.6 per cent were in cases of

ENLARGEMENT OF THE HEART

According to the terminology of the American Heart Association, enlargement of the heart includes both hypertrophy and dilatation. The relative importance of each in a given case can be decided by the clinical symptoms and signs. Enlargement of the heart was present in 139 or 32.1 per cent of the group.

Cabot² states that enlargement of the heart is seldom seen without evidence of valve lesions or pericarditis unless there is a definite chronic hypertension. This observer found a large number of cases of cardiac enlargement present in subjects with arteriosclerosis as well as in those affected with chronic nephritis. Frequently it is difficult to make a definite diagnosis of cardiac enlargement, particularly if x-ray evidence is not present. If, however, enlargement of the heart is suspected and hypertension coexists, the probability is that the patient has cardiac enlargement.

White³ holds that of all structural abnormalities of the heart, enlargement is most common. This observer maintains that the degree of enlargement is an index of the extent of cardiac strain,—a very large heart indicating a severe cardiovascular burden which in turn implies a poor prognosis.

It is generally believed that dilatation accounts for most of the increase in size of the greatly enlarged hearts. Ordinarily hypertrophy alone does not increase the size of the heart very much, and frequently hypertrophy per se is not discernible by clinical examination. However, when the heart begins to dilate it causes an accentuation and extension of the hypertrophic changes of the myocardium.

White³ is of the opinion that cardiac enlargement is due to a number of causes, such as valvular disease, coronary obstruction, an adherent pericardium, hypertension, thyrotoxicosis, severe anemia, emphysema, or myxedema. This observer maintains that the speed of enlargement and the preponderance of hypertrophy or dilatation depend upon factors of duration and extent of the causative factor. Occlusion of a coronary artery may result in a rapid cardiac enlargement due to the development of dilatation with hypertrophic changes when the heart begins to compensate. On the other hand essential hypertension may cause a gradual enlargement consisting primarily of hypertrophy with an ensuing dilatation when the heart begins to fail.

White³ holds that cardiac enlargement may occur at any age. In the young it is almost always the result of rheumatic valvular disease, in middle age it is due most often to hypertension, but frequently to chronic valvular disease of rheumatic or syphilitic origin, in old age cardiac enlargement is the result of hypertension, coronary occlusion, or chronic pulmonary disease.

Cardiac enlargement consists usually of hypertrophy of the myocardium and dilatation of the chambers of the heart. The increase in the size of the myocardium is due to an increase in the size of the individual muscle fibers, and not to an increase in the number of these fibers. According to Norris⁴ enlargement of the heart may in part be due to an increased amount of connective tissue, fat, and blood vessels in addition to an actual increase of the size of the muscle fibers. The dilatation which is found in cardiac enlargement is the result of a stretching of the heart wall due to an atonic state of the musculature or to an increased work demand of the heart.

The coexistence of hypertrophy and dilatation in enlargement of the heart may be seen by a study of the data of Cabot² in 4,000 necropsies. This observer found that the two conditions occurred together 1,088 times, hypertrophy occurred alone 121 times, and dilatation occurred alone 118 times.

Among 433 patients with heart disease, it was found that 139 gave evidence of cardiac enlargement. An effort was then made to classify the latter group of cases according to the etiological type of heart disease. It was thought that in this manner information might be obtained which would throw light on the causative factor of the pathological changes which resulted in enlargement of the heart.

It was found that among 139 cases of cardiac enlargement, forty patients or 28.8 per cent of the group gave evidence of arteriosclerotic heart disease, twenty-eight or 20.1 per cent of the group had rheumatic heart disease, twenty-two or 15.8 per cent gave evidence of heart disabilities due to infectious diseases; twenty-one or 15.1 per cent gave evidence of syphilitic heart disease, nine or 6.5 per cent of the group had hypertensive heart disease, and the remaining number gave evidence of various other etiological types of heart disease.

There are certain anatomic lesions of the heart coexisting with enlargement which may possibly have acted as etiological factors of the latter condition. The most frequent of such heart conditions were chronic inflammatory or degenerative diseases of the myocardium, arteriosclerosis, mitral insufficiency, aortic insufficiency, mitral stenosis, syphilitic aortitis with dilatation, and chronic endocarditis.

The principal abnormal physiological conditions of the heart coexisting with cardiac enlargement were hypertension, mitral incompetency, aortic incompetency, congestive heart failure, sinus tachycardia, chronic auricular fibrillation, anginal syndrome, and auriculoventricular heart-block.

Chronic disease of the kidney was the most common condition outside the cardiovascular system coexisting with enlargement of the heart.

CARDIAC HYPERTROPHY

Ophüls holds that cardiac hypertrophy is commonly seen in generalized arterial disease, and in general arteriosclerosis. This observer also maintains that cardiac hypertrophy is a frequent accompaniment of essential hypertension. The presence of cardiac hypertrophy in cases of general arteriosclerosis is regarded by Ophüls as evidence of the previous existence of hypertension for a sufficient period of time to produce hypertrophy of the heart. This observer further holds that cardiac hypertrophy is much more likely to occur when the arterial disease is associated with serious diffuse disease of the kidneys. Norris⁴ states that when hypertrophy is due to an obstruction to the outflow of blood, simple hypertrophy is induced, when it arises from diastolic overfilling hypertrophy and dilatation occur. Hypertrophy affects only such parts of the heart musculature as are actually called upon to do extra work. In addition to the causes of cardiac hypertrophy already mentioned, valvular heart disease and increased work of the heart are frequent etiological factors.

Certain of the valvular diseases have characteristic effects upon the heart, for instance mitral stenosis affects the left auricle and the right ventricle, aortic regurgitation and aortic stenosis affect the left ventricle. A number of observers are of the opinion that hypertrophy of the heart may infrequently be found without any apparent underlying cause.

Among 433 cardiac patients it was found that 107 or 24.7 per cent showed evidence of hypertrophy of the heart. A study of these cases according to the etiological type of heart disease indicates that thirty-six or 33.7 per cent were arteriosclerotic heart disease, thirty or 28 per cent were classified as rheumatic heart disease, seventeen or 15.9 per cent were syphilitic heart disease, twelve or 11.2 per cent were patients with heart disease due to infectious diseases, and six or 5.6 per cent were hypertensive heart disease. The remaining number gave evidence of various etiological types of heart disease.

A number of anatomic lesions of the heart were noted as coexisting with cardiac hypertrophy. The most frequent of these were arteriosclerosis, chronic myocardial disease, aortic insufficiency, mitral insufficiency, and mitral stenosis.

The most common coexisting abnormal physiologic conditions of the heart in the group of 107 cases of cardiac hypertrophy were hypertension, aortic incompetency, sinus tachycardia, mitral incompetency, congestive heart failure, hypotension, and chronic auricular fibrillation.

It was further noted that chronic renal disease was the most common disease outside the

cardiovascular system coexisting with cardiac hypertrophy.

CHRONIC MYOCARDIAL DISEASE

There are two anatomic types of chronic myocardial disease: first, myocardial disease due to inflammatory injuries. The lesions of this type may be exudative or proliferative and may either be confined to localized areas or scattered profusely throughout the musculature of the heart. This type of myocardial disease is characterized by exudation around the blood vessels which is followed by scar tissue formation in the periarterial areas when the lesions heal. The second type of myocardial disease is a fibrosis. It is purely a degenerative process characterized by the presence of scars, and atrophy of the muscle fibers with replacement by fibrous connective tissue. The latter type is usually due to coronary sclerosis.

DePorte⁵ in a study of a group of cases of chronic myocardial heart disease found that the principal etiological factors of the inflammatory type were the various acute infections including rheumatic fever. The degenerative type of chronic myocardial disease characterized by fibrosis was due to such conditions as thyroid disease, hypertension, and arteriosclerosis.

Ophüls¹ in commenting on the relationship of arteriosclerosis and disease of the coronary arteries to myocardial disease found that there were two possibilities. One in which the coronary arteries became entirely obstructed by thrombosis with the development of large necrotic areas or scars in the myocardium. The second group in which the coronary arteries were narrowed thus cutting off the blood supply and resulting in small areas of fibrosis in the heart musculature. In the latter group hypertension was a frequent coexisting condition.

Krumbhaar⁶ is of the opinion that any condition which interferes with the normal supply of blood to the heart results in muscle degeneration followed by replacement with fibrous connective tissue. It is the opinion of this observer that arteriosclerosis and uncompensated cardiac valvular disease are two frequent causes of chronic myocardial disease.

Chronic myocardial disease is a very frequent finding both clinically and at postmortem. Thus DePorte⁵ found 528 or 28.9 per cent of 1826 cases of heart disease in New York State with evidence of damage to the myocardium. Haven Emerson found that 1966 or 43 per cent of 4566 cardiac patients gave evidence of myocardial disease.

Among 433 cardiac patients in this study it was found that chronic myocardial disease was present in 194 or 44.8 per cent of the group. A compilation of these cases according to the etiological type of heart disease shows that sixty-nine or 35.6 per cent were in cases of

arteriosclerotic heart disease, forty-seven or 24.2 per cent were in rheumatic heart disease, twenty-nine or 15 per cent were present in heart disease due to infectious diseases, fifteen or 7.7 per cent were in syphilitic heart disease, and ten or 5.2 per cent were in cases of hypertensive heart disease.

A study was made of the most frequent co-existing anatomic heart lesions in the group of 194 cases with evidence of chronic myocardial disease, these were found to be arteriosclerosis, enlargement of the heart, mitral insufficiency, cardiac hypertrophy, aortic insufficiency, and mitral stenosis.

The most frequent abnormal physiological cardiac conditions coexisting with chronic myocardial disease were found to be hypertension, mitral incompetency, congestive heart failure, sinus tachycardia, aortic incompetency, and hypotension. Chronic renal disease was the most frequent condition outside the cardiovascular system coexisting with chronic myocardial disease.

VALVULAR HEART DISEASE

Valvular disease is part of a more extensive disease process of the heart frequently resulting in cardiac failure. Valvular heart disease should be considered from several angles, such as the nature of the causative factors, whether the

cause is an infection, if the etiologic factor is an infection, is the infective process active or arrested, if active, is it progressive or at a standstill, the extent of the damage to the heart muscle or to the affected valves, and the degree of interference with the efficiency of the heart.

Laws⁷ in a study of the etiology of heart disease in Whites and Negroes in the State of Tennessee found that of a group of sixty-eight patients with rheumatic heart disease, forty-four gave evidence of mitral lesions, three gave evidence of disease of the aortic valve, and twenty-one patients had lesions of both the mitral and aortic valves. Of fifty-one patients with syphilitic heart disease thirty or 58.8 per cent gave evidence of aortic insufficiency, ten or 19.6 per cent gave evidence of aortic insufficiency and aneurysm, eight or 15.7 per cent showed the presence of aneurysm alone, and three or 5.9 per cent gave evidence of myocardial disease.

Clawson, Bell and Hartzell⁸ in a study of a group of 280 cases of valvular heart disease found that the mitral and aortic valves were most frequently involved, the tricuspid and pulmonic valves were involved next in frequency.

Norris⁴ in a study of the relative involvement of the different valves found that of a total of 5535 cases, 3226 gave evidence of mitral disease, 1315 showed the presence of lesions of

TABLE SHOWING 200 CASES OF VALVULAR DISEASE CLASSIFIED BY ETIOLOGIC TYPE OF HEART DISABILITY

	Rheumatic	Syphilitic	Bacterial Infection	Sequel of Infectious Diseases	Thyroid	Arteriosclerotic	Hypertensive	General Systemic Disease	Congenital	Unknown Etiology	Total
Aortic insufficiency	2	24		3		3	1			2	35
Aortic insufficiency and aortic stenosis	1										1
Aortic insufficiency and mitral insufficiency		16				1				1	18
Aortic insufficiency and mitral stenosis		2		4							6
Aortic insufficiency, aortic stenosis, and mitral insufficiency	1								1		2
Aortic insufficiency, mitral insufficiency, and mitral stenosis	1	2				1					4
Aortic insufficiency, mitral insufficiency, and pulmonic insufficiency								1			1
Aortic insufficiency, mitral insufficiency, and tricuspid insufficiency		1									1
Aortic insufficiency, mitral stenosis, aortic stenosis, and mitral insufficiency	1		1								2
Aortic insufficiency, mitral stenosis, aortic stenosis, mitral insufficiency, and pulmonic insufficiency		1									1
Aortic stenosis	1			2				1			4
Aortic stenosis and mitral stenosis				1							1
Aortic stenosis, mitral stenosis, and mitral insufficiency	1										1
Mitral insufficiency	21			14	1	21	4			5	66
Mitral insufficiency and mitral stenosis	13		2	4		2				1	22
Mitral stenosis	28	1		2		2				1	34
Mitral stenosis and tricuspid stenosis					1						1
Total cases	70	47	3	30	2	30	5	2	1	10	200

the aortic valve, in 691 instances the mitral and aortic valves were affected, and in 116 instances the tricuspid valves were affected. There were other combinations of valvular disease, but these were of minor importance. Cabot² states that rheumatism usually affects the mitral valve, syphilis affects the aortic valve, and hypertension causes an enlargement of the whole heart and leaves the valves intact. Haven Emerson in a study of 4566 patients affected with heart disease found that 40 per cent gave evidence of valvular lesions. Cabot found that 21 per cent of a group of 1230 patients with manifest and latent heart disease gave evidence of valvular heart disease. DePorte³ in a study of 1826 patients in general medical practice under treatment for heart disease found that 48.7 per cent gave evidence of valvular heart disease.

In the group of 433 cases of heart disease it was found that 200 or 46.2 per cent gave evidence of cardiac valvular disease. A study of the specific valves affected in the group referred to showed that sixty-six or 33 per cent gave evidence of mitral insufficiency, thirty-five or 17.5 per cent were cases of aortic insufficiency, thirty-four or 17 per cent gave evidence of mitral stenosis, twenty-two or 11 per cent gave evidence of both mitral insufficiency and mitral stenosis, eighteen or 9 per cent gave evidence of aortic insufficiency and mitral insufficiency; the remaining cases showed the presence of various other types of valvular heart disease the number of which was insignificant and the nature of the valve lesion being of no particular importance.

A study of the 200 cases of cardiac valvular disease revealed the presence of 277 individual valve lesions. It was noted that mitral insufficiency was the most frequent mitral stenosis came next in frequency, and aortic insufficiency was the third most frequent valve disease noted. A tabulation was made of the 200 patients with valvular disease according to the etiological type of heart disease. It is noted that seventy of the 200 patients were cases of rheumatic heart disease, forty-seven were cases of syphilitic heart disease, thirty were classified as being the sequel of infectious diseases, thirty were arteriosclerotic heart disease, five were hypertensive heart disease, the classification of heart disease in the remaining cases may be seen by referring to the table.

Among the seventy cases of rheumatic heart disease the most frequent valvular lesions were mitral stenosis, mitral insufficiency and combined mitral stenosis and mitral insufficiency. Among the forty-seven cases of syphilitic heart disease the most frequent lesions were aortic insufficiency, and combined aortic and mitral insufficiency. Among the thirty cases of heart disease, the sequel of infectious diseases, the most frequent lesion was mitral insufficiency. Among the thirty cases of arteriosclerotic heart disease

the most frequent lesion was mitral insufficiency. Among the ten cases of heart disease of unknown etiology the most frequent lesion was mitral insufficiency.

The most frequent coexisting anatomic heart conditions found in the 200 cases of valvular heart disease were enlargement of the heart, chronic myocardial disease, mitral insufficiency, aortic insufficiency, mitral stenosis, hypertrophy of the heart, and general arteriosclerosis.

The most frequent abnormal physiological heart conditions found to coexist with valvular heart disease were mitral incompetency, aortic incompetency, hypertension and congestive heart failure.

The most common conditions outside the cardiovascular system coexisting with cardiac valvular disease were syphilis, chronic tonsillitis, and chronic renal disease.

SUMMARY AND CONCLUSIONS

1 One hundred and sixty-eight or 33.5 per cent of the group of 433 patients with cardiovascular disease, gave evidence of arteriosclerosis. Of this number 117 were cases of general arteriosclerosis, thirty-eight were cases of local arteriosclerosis and thirteen gave evidence of local and general arteriosclerosis.

A study of the anatomic heart findings coexisting with arteriosclerosis showed that the most frequent cardiac disabilities were chronic myocardial disease, enlargement of the heart, and cardiac hypertrophy. Hypertension, mitral incompetency and aortic incompetency were the most frequent coexisting abnormal physiological heart conditions in arteriosclerosis. Chronic renal disease was the most common condition outside the cardiovascular system found to coexist with arteriosclerosis.

2 The aorta and coronary arteries were the specific vessels most frequently affected with local arteriosclerosis. The most frequent sites of local arteriosclerosis in patients having a combined local and general arteriosclerosis were the coronary arteries and the arteries of the brain.

3 One hundred and thirty-nine or 32.1 per cent of the group of cases gave evidence of enlargement of the heart. Forty of this number were found in patients with arteriosclerotic heart disease and twenty-eight were patients with rheumatic heart disease.

4 Cardiac hypertrophy was found in 107 or 24.7 per cent of the group. The largest number of these were in cases of arteriosclerotic heart disease and the next largest number were in patients with rheumatic heart disease.

5 One hundred and ninety-four or 44.8 per cent of the group of cardiac patients gave evidence of chronic myocardial disease. Sixty-nine or 35.6 per cent of the number were in patients with arteriosclerotic heart disease, and forty-seven or 24.2 per cent of the group were in

patients with rheumatic heart disease. The most frequent anatomic heart lesions coexisting with chronic myocardial disease were arteriosclerosis and enlargement of the heart. The most frequent abnormal physiological heart condition coexisting with chronic myocardial disease was hypertension. The most frequent condition outside the heart and blood vessels coexisting with chronic myocardial disease was chronic renal disease.

6 Two hundred or 46.2 per cent of the group gave evidence of cardiac valvular disease. These 200 cases showed the presence of 277 valve lesions. The most frequent lesion found was mitral insufficiency, next in frequency were mitral stenosis, and aortic insufficiency. The most frequent combinations of valvular lesions were mitral insufficiency and mitral stenosis, and mitral insufficiency and aortic insufficiency.

A classification of the 200 patients with valvular

heart disease according to the etiologic types of heart disease revealed the fact that seventy were cases of rheumatic heart disease; forty-seven were syphilitic heart disease, thirty were cases of heart disease, the sequel of infectious diseases, and thirty were cases of arteriosclerotic heart disease.

REFERENCES

- 1 Ophüls William. Arteriosclerosis. Stanford University Publication. 1 No. 1 1921.
- 2 Cabot, Richard C. Facts on the Heart. Philadelphia W B Saunders Company 1926.
- 3 White Paul Dudley. Heart Disease. New York The Macmillan Company 1931.
- 4 Norris George William. Studies in Cardiac Pathology. Philadelphia W B Saunders Company 1911.
- 5 DePorte J V. Heart disease in general medical practice. Am Heart J 8 476 (April) 1932 33.
- 6 Krumphaar Edward B. Myocardial disease. Nelson's Loose Leaf Living Medicine 4 477 1924.
- 7 Laws Clarence L. The etiology of heart disease in Whites and Negroes in Tennessee 8 608 1932 33.
- 8 Clawson B J, Bell E T and Hartzell T B. Valvular diseases of the heart, with special reference to the pathogenesis of old valvular defects. Am. J Path 2 193 (May) 1926.

A REPORT OF CERTAIN ACTIVITIES OF THE JULIUS ROSENWALD FUND

The trustees of the Julius Rosenwald Fund, at the annual meeting held in Chicago, May 19, 1935, appropriated two hundred and eighty-four thousand dollars (\$284,000) for the work of the year beginning July 1, according to an announcement by Edwin R Embree, President of the Fund. The appropriations were made for rural education, medical services, and Negro welfare.

The Fund will maintain a staff of twelve teachers and students who will work with schools in the southern states in an effort to give education a more direct bearing upon life in rural communities. "During the recent industrial era," Mr Embree said, "schools have trained children almost entirely for success in the cities. Many present trends lead back to country life, and the schools must begin to fit children for life in the country and must cooperate with the health, agricultural and cultural agencies which are working to improve rural conditions."

It was announced that the Fund will continue its active interest in health insurance, pay clinics, public health, and other organized services which will make good medical care more available to people of small incomes. "Most striking among recent developments," said Dr Michael M Davis, Director of the Fund's medical division, "is the growth of plans initiated by physicians, hospitals or lay bodies designed to improve the quality or reduce the costs of medical care, or to make it easier for the

average family to pay for it. To the office of this Fund alone there has recently come knowledge of 344 plans and projects in all parts of the country. Among these are projects for budgeting hospital bills at a cost of from \$5 to \$10 a year, which have been set under way in over 40 cities during the last two years, sponsored by the American Hospital Association and endorsed in principle by the American College of Surgeons and recently by the editor of the *Journal of the American Medical Association*. The general public receives and pays for medical care. Physicians, dentists, nurses, hospitals and clinics furnish it. The public and the professions have a common interest in keeping up the quality of medical care and in working together on plans whereby the average family may get treatment without ruining its finances or asking for medical charity."

During the past year Dr Davis served on the consulting staff of President Roosevelt's Committee on Economic Security, and Dr C Rufus Rorem, of the Fund's staff, served as consultant in group hospitalization to the American Hospital Association.

The Chairman of the Board of Trustees of the Fund is Mr Lessing J Rosenwald, Mr Edwin R Embree is President. The other members of the Board of Trustees are Dr W W Alexander, Dr John J Coss, Robert M Hutchins, Dr Charles S Johnson, Dr Charles H Judd, Leonard M Rieser, William Rosenwald, Alfred K. Stern, and Frank Sulzberger.

CASE RECORDS

of the

MASSACHUSETTS GENERAL
HOSPITALANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.

CASE 21221

PRESENTATION OF CASE

A fifty two year old Canadian shoemaker entered complaining of abdominal pain.

Twenty seven hours before admission while sitting in an easy chair after supper he was suddenly seized with severe epigastric pain which lasted a few minutes. It was soon followed by a second pain which seemed to spread along both costal margins and then become generalized over the upper abdomen. Twenty minutes later he began to vomit. The vomiting continued throughout the night and up until six hours before admission. A physician was called that evening and gave him a hypodermic. He was called again the following evening at which time he gave the patient another hypodermic and advised admission to the Emergency Ward. There was no history of urinary symptoms, chills, fever or costovertebral pain. There was also no history of shortness of breath, palpitation, edema or precordial pain.

The patient had had intermittent attacks of epigastric distress during the past fifteen years. The attacks came on one or two hours after meals and were relieved by soda. The pain had never awakened him at night and there had been no vomiting, hematemesis or melena.

His family history is non-contributory.

Physical examination showed an obese, elderly man in a stuporous condition but who answered questions fairly well when aroused. His pupils were contracted but reacted slightly to light. His teeth were in poor condition. There was no lead line. He could not sit up in bed because his knees were flexed permanently. The heart and lungs were negative. The blood pressure was 110/90. The abdomen was distended and tympanitic throughout. There was tenderness and spasm in all quadrants, most marked in the upper abdomen. Liver dullness was present. Peristalsis was audible and normal. On rectal examination there was a slightly enlarged prostate. There was no tenderness or masses. The knee jerks were normal.

The temperature was 101.1°, the pulse 110. The respirations were 10.

Examination of the urine was negative. The blood showed a white cell count of 26,000.

An exploratory laparotomy was immediately performed.

DIFFERENTIAL DIAGNOSIS

DR EDWARD L. YOUNG, JR. The presenting symptoms of this man's illness could be the starting point of so much that it is hardly worth guessing until we get "some more packing out of the case."

I assume that the hypodermic was given the evening of onset, within an hour or two, and apparently it was enough of a hypodermic so that it made his pain subside very much and he did not call the doctor again until the next evening. Another hypodermic was administered and admission to the Emergency Ward advised not the best way of handling such a condition.

"The pain had never awakened him at night and there had been no vomiting, hematemesis or melena." An attempt to find out whether there was any good story of peptic ulcer.

It is very difficult for us to get a picture from paper which may be comparable to the picture this patient would give. It would be interesting to know the impression as to whether this stuporous condition was connected with the contracted pupils, in other words, whether it was the result of a heavy dose of morphine or whether it was due to the disease from which he was suffering. But the pupils did react slightly to light. That is important to consider.

"He could not sit up in bed because his knees were flexed permanently." I assume that means an arthritic condition. Of course in acute perforation or peptic ulcer we do occasionally see a person who is bent over and contracted because of abdominal pain and the muscles are so tense that you cannot move them.

"Peristalsis was audible and normal." Extremely important, I believe, if true.

"The respirations were 10." There is a suggestion of morphinism there.

There are several contradictory facts. An acute epigastric pain of this type of course can be coronary but should not be coronary over twenty four hours with this abdominal picture and with a negative heart examination. There have been a number of cases where the abdomen has been opened for perforation, when the condition was tabetic crisis but this man has pupils which reacted and knee jerks which are present. He has a past history of epigastric distress coming on one or two hours after meals, relieved by soda. It is not impossible that that is not peptic ulcer but a gall bladder condition. The more I see of patients whose distress is relieved by soda the more I want to know how it is relieved, whether it is a fairly rapid subsidence of the pain after taking the soda or the production of gas which is belched with immediate relief. Although it is by no means pathognomonic, that latter form of relief is often the type that goes with gall bladder disease and not with ulcer. We see it frequently, I think.

There is no other non-surgical or extraabdominal condition that we would want to consider. A lead colic is not the colic that goes with a distended, tympanitic abdomen. With this description we must consider acute cholecystitis with perforation, acute pancreatitis and a rapidly fulminating and consequently a rapidly perforating appendix. In spite of the negative urine this might fit the fulminating type of acute hematogenous kidney, except for the absence of extreme costovertebral tenderness.

The conditions that would cause severe pain of this type seem to me to demand a silent abdomen at the end of twenty-four hours. That is less true of acute gall bladder. Is there any other condition with severe pain? We do not know whether he had an enema or any response to it, but mesenteric thrombosis could give very severe pain.

It seems that the important thing here is to make a diagnosis as between a non-operative and an operative condition. I am unable to make any more accurate diagnosis than that I believe it is surgical, that it is not tabetic, that it is not coronary disease, and I think he demands surgery. That is as far as I should be willing to go, assuming I had heard the peristalsis. I do not know whether it is mesenteric thrombosis or volvulus. Of course the white count if it is intestinal obstruction means strangulation, volvulus, strangulated hernia or something of that type. I think that is as far as I am willing to go except to say that I should operate for a surgical condition.

CLINICAL DISCUSSION

DR TRACY B MALLORY Are there any more suggestions?

The house diagnosis was question of acute pancreatitis, and question of perforation somewhere in the gastrointestinal tract. They evidently felt as you did, Dr Young.

DR HERBERT D ADAMS I saw this man in the Emergency Ward and operated upon him, and the thing that struck me chiefly about him was the fact that he had had a very severe attack of upper abdominal pain and in the course of twenty-seven hours was practically in shock. The other outstanding symptom, which we felt was very important in the differential diagnosis, was the persistent vomiting. The patient had an ashen gray cyanotic appearance described as being characteristic of acute hemorrhagic pancreatitis. The abdomen was distended, spastic, tender, and he had definite peristalsis. One would not expect peristalsis either with a widespread bacterial peritonitis or with a chemical peritonitis such as one gets with pancreatitis. The liver dullness was not obliterated, which is definitely against a perforated peptic ulcer with such a widespread peritonitis. An x-ray taken on the way to the operating room showed no

free gas under the diaphragm. Our preoperative diagnosis was, therefore, acute pancreatitis.

The abdomen was opened under local anesthesia. It was full of bloody fluid and there were fat necroses throughout the omentum and the mesentery. The lesser peritoneal cavity was opened and the pancreas found to be greatly swollen and indurated throughout its length. The capsule was incised and the body and tail drained. The gall bladder was also drained. The patient was extremely sick and it was felt that very little benefit would be derived from the operation.

CLINICAL DIAGNOSIS

Acute pancreatitis

DR EDWARD L YOUNG'S DIAGNOSES

Acute surgical abdomen

Perforation?

Pancreatitis?

Acute cholecystitis?

ANATOMIC DIAGNOSES

Pancreatitis, acute hemorrhagic

Fat necroses of peritoneum

Pulmonary edema, slight

Cholelithiasis

Operative wound Cholecystostomy and drainage of pancreas

PATHOLOGIC DISCUSSION

DR MALLORY The autopsy showed the characteristic appearance of an acute hemorrhagic pancreatitis with the lesion located in the body and tail rather than the head of the organ. It was very much swollen. When we cut into the organ we found alternating areas of chalky white fat necrosis and hemorrhagic foci running from one millimeter up to a centimeter in diameter. The gall bladder was negative on the external surface but on opening it we found one small stone. There were no stones in the common duct, none in the papilla. The fat necrosis had extended to a large portion of the peritoneal surface and the parietal peritoneum and the omentum were closely and uniformly dotted with fat necroses. There were no other findings of any significance. I think we must assume that death was due essentially to shock coupled with the toxemia of pancreatitis per se.

DR YOUNG I think the audible peristalsis is very interesting because you would not expect it at that stage of the game.

CASE 21222

PRESENTATION OF CASE

Approximately four months before entry the patient, a seventy-two year old Canadian barber, noticed that he was losing his appetite and getting weaker. He soon began to lose weight

and develop shortness of breath on exertion. He had no precordial pain, cough, cardiac asthma or hemoptysis. About two weeks before entry on the advice of his physician, he entered a hospital, where he was told there was something wrong with his blood and that he needed x ray treatment. He was given some medicine, following which he felt much better. His appetite was good and his bowels regular. His stools were not remarkable. He had noticed "stiffness" in his upper abdomen. There was no history of nosebleeds or purpuric manifestations. During the past four months he had lost about thirty pounds in weight.

His family and marital histories are non contributory.

He had had small protruding hemorrhoids for which he had been using suppositories. At about the time of the onset of his present illness he had slight rectal prolapse which was replaced by his physician.

Physical examination showed an elderly man with obvious weight loss. There was some arteriosclerosis of the retinal vessels but no hemorrhages or exudate. The heart and lungs were negative. The blood pressure was 130/70. The liver was markedly enlarged, stony hard, nodular and non tender. It extended 12 centimeters below the costal margin in the right midclavicular line and to the umbilicus in the midline. There was slight pitting edema of the left ankle.

The temperature was 99° the pulse 100. The respirations were 24.

Examination of the urine was negative. The blood showed a red cell count of 4,820,000, with a hemoglobin of 80 per cent. The white cell count was 19,400. 68 per cent polymorphonuclears. The stools were negative. A Hinton test was doubtful, a Wassermann test negative. The basal metabolic rate was +34.

X ray examination of the chest showed a high diaphragm on both sides with hazy costophrenic angles. The left upper lobe was small and dense. The left lung root was large, irregular and showed what appeared to be linear areas of infiltration extending outward and upward from it. The trachea was not definitely deformed. The heart was small. There were no definite mediastinal masses on the right side. The stomach was displaced downward to the left by a mass in the region of the liver. The first portion of the duodenum was constantly deformed, apparently due to an extrinsic annular mass which infiltrated the mucosa slightly. There was no obstruction in the small bowel or duodenum. A film taken twenty four hours later showed that the transverse colon and the hepatic flexure were markedly displaced downward. The splenic flexure was high. Multiple diverticula were seen along the descending colon and sigmoid. Films of the spine and pelvis showed no evidence of disease.

He was given high voltage x ray treatment to his chest which produced at the end of two weeks slight but fairly definite reduction in the size of the shadow in the left upper lobe. He developed jaundice. An icteric index was 50. He rapidly failed and died, approximately one month after entry.

DIFFERENTIAL DIAGNOSIS

DR. JAMES H. TOWNSEND. In a man of that age, loss of appetite and increasing weakness immediately suggest malignant disease of some sort, perhaps most characteristically in the stomach although it might be elsewhere. It might also be any other constitutional disease like chronic nephritis or pernicious anemia, but it is most suggestive of malignancy.

'He soon began to lose weight and develop shortness of breath on exertion.' This also adds to that thought, the shortness of breath suggesting anemia along with malignancy, perhaps with something in the chest.

We can draw whatever conclusions we want from his stay in the other hospital, but I do not think it helps a great deal. We can only guess as to what the medicine might have been. I doubt if it had any real physical effect on his underlying condition, because of what follows. It is well known that patients with the gravest diseases can be made to feel better temporarily by the use of placebos.

They do not tell us how long he had been bothered with hemorrhoids. One would infer that probably they were something recent. There is a suggestion that there may have been something out of order about his rectum and that the malignant disease possibly was connected with it.

The description of the liver is very striking. It is the classic description of a liver infiltrated with malignant disease, more commonly carcinoma in type. Very few other conditions can produce a liver which can be accurately described as stony hard and nodular. The liver of syphilis with gumma might be nodular. I do not think it would usually be stony hard and very seldom would be as large as the liver described here. It is a very large liver, down to the umbilicus.

They have left out any reference to a rectal examination. In view of the very large liver and symptoms referable to the rectum I think we would like to know whether it was done.

DR. FRANCIS T. HUNTER. It was negative.

DR. TOWNSEND. The blood is essentially normal, except for some leucocytosis. This would suggest that whatever the malignant disease was, it was not an ulcerating lesion of the gastrointestinal tract from which he had been losing blood. The leucocytosis might go with any sort of malignant disease and helps us very little. The stools were negative. That is important. It again points away from an ul

cerating lesion of the gastrointestinal tract I doubt whether we can place much emphasis on the single basal metabolic rate under these conditions

DR HUNTER It was taken three times. FORTY was the highest

DR TOWNSEND The description of the chest x-ray is that of a bronchiogenic carcinoma, tumor in the chest. May we see the films at this point?

DR AUBREY O. HAMPTON He had, as we stated, this definite elevation of the diaphragm on both sides with costophrenic angles which were very narrow and we could not be sure whether they were obliterated by fluid or pressure elevation of the diaphragm from below. The right lung is essentially clear. The left base is a little more radiant than usual and we interpreted this small area as the size of the upper lobe, thinking that perhaps this was the septum more or less on edge. We do not usually see the septum on the left side in the posterior-anterior view but we thought it was possible that there was distortion. We thought this represented the upper lobe.

DR TOWNSEND Presumably the tumor mass interfered with aeration and resulted in collapse of the upper lobe.

DR HAMPTON The peripheral portion could be due to fibrosis secondary to an inflammatory process. The difficulty in making out collapse was that the heart was not displaced. Yet we had to assume that the lobe was reduced in size and that there was a mass that infiltrated outward and was consistent with malignancy.

Six hundred R of deep therapy front and back to the chest, that is a lymphoma dose, was given for the purpose of differential diagnosis and there was a slight but definite reduction of the mass but not so much as we would expect if it were lymphoma.

DR TOWNSEND It does not look as if there were an appreciable amount of fluid in the chest.

DR HAMPTON No, there is a little haziness but not enough for fluid.

DR TOWNSEND And while it resembles the picture of bronchiogenic carcinoma it is not absolutely characteristic.

DR HAMPTON No, it is not characteristic without the mediastinal displacement to the left. There is also a shadow here which may be an enlarged gland.

DR TOWNSEND I should assume that the elevated diaphragm was due to the very large liver.

I wonder if Dr. Hampton can tell us about the duodenum. The statement that "the mucosa looks slightly infiltrated by an annular mass" is an unusual one for an x-ray interpretation.

DR HAMPTON The impression that I got from fluoroscopy did not check so well with what we obtained on the films. This is the duodenum

here and here. As I viewed the stomach and duodenum everything was moving except the first portion of the duodenum and that did not change at all. It was as though fixed, no muscular activity whatsoever and although it had the appearance of an ulcer projecting upward I felt that it might just as well be a pressure defect from without. Then we obtained relief films of that same area which I am quite sure I did not interpret correctly but in view of the fact that there was no muscular activity I thought it must be an extrinsic lesion. Dr. Martin corrected me and very quickly said that it was an ulcer and he said there was another one which was healed. I think this is the healed ulcer and this the active ulcer, this in front and this behind—two ulcers there, with my observation, which was correct, that the duodenum did not change in shape at any time.

DR TOWNSEND We have seen the comparisons of the two chest films, before and after treatment. It seems as if there was slight reduction in the shadow of the tumor mass as the x-ray reports say, but not so much as we would expect if it were a radiosensitive lymphoma or lymphosarcoma in the chest.

Looking back over some of the important findings, the outstanding feature is the very large liver which is described as stony hard and nodular. I think we must build our diagnosis around that. There are very few conditions except metastatic malignancy that will produce a liver like that. About 90 per cent of such tumors would be carcinoma arising in the drainage area of the portal system, stomach, duodenum, pancreas, or some portion of the colon or rectum. Another tumor that commonly produces such a liver, and might do so in a man of this age, is one of the melanotic sarcoma group which sometimes arise in the back of the eye. Here we have a description of the eyes as normal and no reference to any nodules in the skin. Other types of sarcoma, either of bone or connective tissue origin, would not be apt to produce such extensive liver involvement and the primary focus would probably be obvious. Besides the evidence of malignancy in the liver we have an abnormal mass in the chest which to some extent resembles a bronchiogenic carcinoma but we have no symptoms in the history, no cough, no hemoptysis. One would expect that such symptoms would be prominent in the early history of such a disease. The other common tumor in the chest would be a lymphosarcoma. I doubt very much whether this lesion is the primary lesion. If it were either a bronchiogenic carcinoma or a lymphosarcoma I doubt if it would produce a liver such as is described here. That is not the usual manner of metastasis of such cases. Lymphoma might produce a large liver but very seldom a nodular liver as described here. The bronchiogenic carcinoma usually gets

into serious trouble with the primary lesion before it produces any such metastatic picture. Added to this we finally have jaundice. I do not think that should influence us very much in the decision, because at least half of the patients with a liver like this will develop jaundice before they die, the jaundice being due in most cases to involvement of glands in the portal fissure of the liver. I think that the nodules in the liver might produce distortion of the duodenum. Primary carcinoma of the duodenum does occur, but it is rare, and when it occurs it usually starts near the opening of the bile duct and is apt to produce jaundice early in the game instead of later as here.

I am going to venture the opinion that both the liver and the chest lesions are metastatic and that we do not know where the primary lesion is, that it is in one of the "silent" areas in the abdomen, very possibly the pancreas. It might be in some portion of the colon where it did not show by x ray. We know that does happen from time to time a favorite place being the junction of the sigmoid and rectum beyond the reach of the examining finger.

I do not think syphilis of the liver would produce this picture. I do not think that mass in the chest can be an aneurysm. The aorta was visible, quite distinct from the chest mass. I do not think there is clear evidence pointing to where the primary site of the tumor is, but there is a suggestion from the symptoms that it may be in the lower part of the large bowel.

CLINICAL DISCUSSION

DR. HUNTER. This patient was one that I took care of. I came to the same conclusion Dr. Townsend did. We suffered under the affliction of having too much information. The medicine that was given was Fowler's solution. The blood examination was 14,000 with 10 per cent myelocytes. He was sent in with a probable diagnosis of myeloid leukemia but on examination he had a nodular liver. I have never seen with myeloid leukemia.

DR. TOWNSEND. The absence of anemia practically excludes leukemia.

DR. HUNTER. Not necessarily. I saw a patient this morning with a leukemia with a red count of eight million. The absence of enlargement of the spleen is against it. When the patient got here he had a white cell count of 20,000 with occasional myelocytes. Then came this metabolic rate. It was very high and it was checked several times. There is very little doubt about its correctness. Although such a finding is unusual I found that certain men had heard of high metabolism in general carcinomatosis.

Finally, the lung did not fit into any picture I had ever seen in leukemia, but on the hope that he might have some type of radiosensitive malignancy he was referred to x ray where we

gave him this trial which obviously demonstrated that the tumor was resistant. I have not seen so high an icteric index with metastatic carcinoma of the liver, but that is what our final diagnosis was. We did not know where the primary site was.

DR. DONALD S. KING. I can remember three other cases whose x ray films showed a triangular shadow at the root of the lung similar to that shown in the films of this patient. These cases all proved to be bronchiogenic carcinoma. In view of this fact, I would say that the x ray under discussion is characteristic of carcinoma of the bronchus with beginning atelectasis. It is true also that we have had a number of cases all of whose symptoms were caused by the metastasis with no symptoms from the pulmonary lesion.

My guess in this case would be primary carcinoma of the bronchus with metastases to the liver.

DR. TOWNSEND. Have you ever seen as extensive metastases to the liver as these, from bronchiogenic carcinoma?

DR. KING. I remember no such extensive liver metastasis as the one in this case and do not know whether Dr. Mallory remembers any livers of this size. We have, however, had a number of instances of metastases to the liver as well as to the adrenals, brain, etc.

CLINICAL DIAGNOSIS

Carcinoma of the liver

DR. J. H. TOWNSEND'S DIAGNOSIS

Metastatic carcinoma of the liver and mediastinum

ANATOMIC DIAGNOSES

Bronchiogenic carcinoma, left upper lobe
Metastases to regional, mesenteric and retroperitoneal glands, liver and bone marrow
Icterus
Duodenal ulcers, acute, with hemorrhage.
Ascites, slight.
Hydrothorax, left slight.
Arteriosclerosis, slight aortic, coronary renal

PATHOLOGIC DISCUSSION

DR. MALLORY. At the time of the autopsy we were just as vague as to where the cancer was primary as the clinicians had been. We found of course an enormous liver which was studded with metastases throughout its entire length, right and left lobe uniformly; no single tumor greater than two centimeters in diameter, many of them down to a millimeter in size. It did not seem probable that a cancer arising primarily in the liver could distribute itself throughout the liver so diffusely as that without invasion of the hepatic veins, and we did not

find that We found, as Dr Martin predicted, two ulcers in the duodenum, one in the anterior and one in the posterior wall. One of these had become firmly adherent to the liver and the inferior surface of the liver practically formed the base of the ulcer, I think in that way explaining the lack of peristalsis. The left upper lobe of the lung was somewhat contracted and as we cut down the bronchi we found a large tumor mass involving the bronchial glands and completely surrounding the main bronchus of the left upper lobe but not involving its mucosa. The bronchus was apparently narrowed from external pressure but still patent so that we felt unable to make a diagnosis of primary bronchiogenic carcinoma. When the sections came through, however, we found that a small

branch of the second order did show complete occlusion with tumor. I think it is entirely consistent with bronchiogenic carcinoma and I have no doubt that that was the primary focus. The two ulcers in the duodenum are perfectly benign ulcers.

DR TOWNSEND The main mass that showed in the chest was due to glands?

DR MALLORY Yes, particularly surrounding the bronchus to the upper lobe, but also some of the hilus glands as well.

DR HUNTER Did the bone marrow show anything?

DR MALLORY Multiple metastases.

DR HUNTER That explains the high count, the myelocytes.

The New England

Journal of Medicine

SUCCESSOR TO

THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

COMMITTEE ON PUBLICATIONS

R. I. LEE, M.D., Chairman HOMER G. ORR, M.D.
R. B. OSGOOD, M.D. R. M. SMITH, M.D.
F. H. LANEY, M.D.

EDITORIAL STAFF

REED HUNT, M.D. STEPHEN RUSHMORE, M.D.
JOHN P. SUTHERLAND, M.D. HANS ZIMMER, M.D.
OSCAR R. MINOT, M.D. BENJAMIN WESTER, Ph.D.
FRANK H. LANEY, M.D. HENRY L. VINT, M.D.
STURGEON WARREN, M.D. ROBERT N. NIX, M.D.
GEORGE L. TONEY JR., M.D. ROBERT M. GREEN, M.D.
C. GUY LANE, M.D. CHARLES C. LUND, M.D.
WILLIAM A. ROBERTS, M.D.

WALTER P. BOWEN, M.D., Managing Editor

ASSOCIATE EDITORS

OSCAR G. SMITH, M.D. WILLIAM B. BREED, M.D.
JOSEPH OAKLAND, M.D.

THE NEW HAMPSHIRE MEDICAL SOCIETY

PUBLICATION COMMITTEE

CARLETON R. METCALF, M.D. HENRY H. AMESDEN, M.D.
WARREN H. BUTTERFIELD, M.D.

THE VERMONT STATE MEDICAL SOCIETY

PUBLICATION COMMITTEE

WILLIAM G. ROCKEY, M.D. C. F. DALTON, M.D.
L. H. ROSE, M.D.SUBSCRIPTION TERMS: \$5.00 per year in advance, postage paid
for the United States. Canada \$7.00 per year, \$8.00 per year
for all foreign countries belonging to the Postal Union.Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office & Fenway.The Journal does not hold itself responsible for statements
made by any contributor.Communications should be addressed to The New England
Journal of Medicine & Fenway Boston, Mass.GLAUCOMA—A MAJOR HAZARD TO
EYESIGHT

THE man in the street to-day places increasing confidence in his medical advisers and in the various health agencies which together have waged an unremitting educational campaign against the major hazards to life.

It is accepted that such educational campaigns provide the most effective route to early diagnosis and to effective treatment, without which there can be no adequate control of cancer, tuberculosis, diphtheria or other major hazards to life.

The greater hazards to the senses of sight and hearing have as yet no champion to organize educational campaigns which reach down to the rank and file. Salvage of sight or hearing for the average man is too often fortuitous, and too often comes too late to be effective. The medical practitioner should never forget that conservation of the sight of his patient is as truly his responsibility as the conservation of the life of his patient. The most influential unit in any sight conserving program is the alert family physician.

Glaucoma is a major hazard to eyesight, and causes about one-third of all blindness arising after the fortieth year. There are two chief types of glaucoma, acute and chronic. *Acute* glaucoma needs no herald to announce its presence, for there is rapid loss of central vision, severe ocular pain uncontrolled by opiates, nausea and vomiting. Fortunately, acute glaucoma is the less frequent type, and prompt treatment by iridectomy usually saves central vision. Acute glaucoma then compares as a surgical emergency with a ruptured appendix, and the family physician is remiss in his duty if he fails at once to engage a competent eye surgeon to handle the emergency.

Chronic glaucoma is a different creature entirely. Its onset is insidious. There is no pain in the eye, and no remote symptoms in the central nervous system. Central vision is spared until very late in the disease, so that the patient may easily read the finest print at the time when nearly the entire visual field is irretrievably lost. While it frequently involves both eyes, the involvement of one eye precedes that of the other, and the nasal field defect of the more diseased eye is masked by the overlapping intact field of the less diseased eye.

There is no pathognomonic sign or symptom of chronic glaucoma. There may be prismatic halos around bright lights, a slight blur of vision in the morning passing away by noon, a difficulty in sustaining focus in reading, a somewhat dilated and sluggish pupil, a delayed or deficient ability of the eye to dark adapt, all coefficients to the extent and duration of abnormally increased intraocular pressure. On the other hand, there may be no symptoms whatever, but yet all the damage of glaucoma may be present in an eye which has a structurally weak optic disc which easily gives way to slight pressure increases. The chief damage from glaucoma is from stretching and death of the optic nerve fibers as the optic disc is cupped under increased ocular pressure.

The diagnosis of chronic glaucoma requires three legs to stand upon:

- 1 Glaucomatous cupping of the disc
- 2 Increased ocular pressure as measured by the tonometer
- 3 Glaucoma field defects verified on the perimeter

Of the three abnormalities, the glaucoma field defect is the most informative and the most reliable. These defects, the nasal step and the co-extension of the nasal field defect with the blind spot of Marotte, indicate that the tissues of the optic disc are too weak to withstand the ocular pressure, at whatever level that pressure may stand. One must be acquainted with similar defects caused by blocking of either superior or inferior temporal retinal artery.

A frank diagnosis of glaucoma is frequently masked by the presence of cataract, which is a frequent sequel to glaucoma. If cataract is merely a senile degeneration of the lens it is justified to wait for ripening before attempting surgical extraction. If cataract is secondary to glaucoma, delay for any reason to lower the ocular pressure to a safe level results in incurable loss of sight.

The alert medical practitioner will always have glaucoma in mind when he is dealing with patients past the fortieth year, since glaucoma occurs with increasing frequency after forty. He will seek a qualified ophthalmological opinion about his patients who have entered this danger zone. He will expect in the report from the ophthalmologist a statement about the optic disc, the ocular pressure as measured by a tonometer, and about the condition of the visual fields. He will know that no qualified ophthalmologist would fail to report these fundamental facts from his examination of any patient over forty years of age.

CANCER

The Commonhealth

THE last issue of Volume 21 of *The Commonhealth*, the quarterly bulletin of the Massachusetts Department of Public Health, is devoted to a discussion of cancer, with many short but comprehensive articles by competent surgeons of various phases of this disease. In his foreword Dr. Henry D. Chadwick, Commissioner of Public Health, points out that the new policy of cancer control of the Massachusetts Department of Public Health has been perfected through the joint cooperation of the Department, the Cancer Committee of the Massachusetts Medical Society, the Massachusetts Branch of the American Society for the Control of Cancer, and many individual physicians and surgeons in the State.

This policy is based on the thesis that the practicing physician is the keyman in the cancer control movement, for it is he who will first see the cancer case, must educate his patients to detect the early signs of the disease and must be the guide to adequate therapy. Group study is necessary in the diagnosis of cancer and the outlining of methods of treatment, and the State-aided Cancer Clinics in Massachusetts are prepared to furnish this advice as a consultation service for the physician.

Lay cancer committees in each town are to be known as the Cooperative Cancer Control Committees, and these will arrange meetings in small groups and invite the local physicians to discuss with them the subject of cancer.

Following are thirty-one articles on the subject of cancer, ranging from discussions of detailed and specific types of the disease in various loca-

tions to descriptions of the organization of cancer clinics, social service in cancer work and historical trends in cancer.

The Massachusetts Medical Society

THE ANNUAL MEETING

THE amended program of the Annual Meeting of the Massachusetts Medical Society, as published in the *Journal* of last week, has been sent to the Fellows.

The preparation of this document has engaged the attention of the members of the Committee of Arrangements. It warrants careful study because it sets forth a well-devised scheme for the presentation of many of the important phases of modern medicine.

In reading this program one may plan his time to advantage so as to select papers and demonstrations which will supply the information particularly useful to him.

The motion picture demonstrations will be especially attractive and the scientific exhibits will present advanced work on the important phases of disease. Such exhibits have been regarded as of great educational importance and warrant the expenditure of adequate time.

The Annual banquet is the important social occasion of the Meeting. The after-dinner speaking will be of a high order, for President Robey has acceptances from His Excellency, Governor Curley, one of the prominent and effective orators of the present day, His Honor Mayor Mansfield of Boston, who has been confronted with some of the perplexing problems of Boston and has shown keen interest in the welfare of its citizens, Mr. Roscoe Pound, Dean of the Harvard Law School, noted for his profound knowledge of law, who is well aware that doctors know little of law and are only superficially interested in the details of that profession except when obliged to appear in court. With his reputation for wit as well as wisdom he will surely provide entertainment as well as instruction. The Rev. Phillips Endicott Osgood, too, is noted for his delightful sense of humor in dealing with human affairs and will, according to his custom, include in his address the resources of the after-dinner speaker, and Dr. Douglass V. Brown, Assistant Professor of Economics of Harvard University, who can advise the medical profession on those subjects which are of importance under existing conditions. In this group, each is well fitted to instruct and entertain the Fellows and their guests and everyone who can be spared from professional duties should arrange to hear these eminent men.

William Edward Gallie, M.D., F.A.C.S., F.R.C.S. (England), Professor of Surgery of the University of Toronto Faculty of Medicine,

in the Shattuck Lecture will bring to our people his extensive knowledge of the surgical problems to which he has devoted his attention for several years

The Commercial Exhibits are also of educational value, for they display the practical illustration of the employment of science and art in the practice of medicine

An attractive feature of the Meeting is the program for the entertainment of the wives of members. This has been prepared by a Committee of Ladies under the direction of Mrs. W. H. Robey, and it is hoped that there will be a response in the presence of a large number of ladies. This program should be submitted to the families of the doctors in order that the ladies may be fully informed of the plans for their entertainment. The effect of this program may be to lead to the formation of an Auxiliary Society of ladies which has been endorsed by several State Societies and in some places has co-operated with the physicians effectively in carrying on public health policies.

This Annual Meeting, in the scope and quality of the proceedings, has never been exceeded in Massachusetts and great credit is due the Committee in charge and the several Sections. The Fellows will find these three days a delightful vacation period.

The attention of the Fellows is called to the attractive features of the non medical portion of the program. First, the remarkable color slides and motion pictures of Mexico to be shown Monday evening. During the past month these pictures have been shown several times to large audiences and have been enthusiastically received.

Secondly, at the request of the Massachusetts Medical Society the Boston Physicians Art Society is holding a Hobby Show to exhibit various handicrafts of some of its members. This exhibition will be held in Parlor C of the Hotel Statler at the Annual Meeting June 3 to 5.

This group hopes to stimulate an interest in the creative arts and crafts among physicians and thereby gain new members. Anyone interested may communicate with Mr. Ballard at the Boston Medical Library, 8 Fenway, Boston. Members of the Massachusetts Medical Society who wish to express their artistic ability or develop their hobbies are eligible for membership.

A cordial invitation is extended to physicians who may be interested in seeing what their conferees are doing with their leisure time.

Finally, there will be a splendid Golf Tourna-

ment at the Belmont Springs Country Club which will conclude what your Committee hopes will be the best Annual Meeting of the Massachusetts Medical Society yet arranged.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

PEMBERTON, FRANK A. S.B., M.D. Harvard University Medical School 1909 F.A.C.S. Clinical Professor of Gynecology, Harvard Medical School Surgeon in Chief, Free Hospital for Women, Brookline. Address 198 Commonwealth Avenue, Boston, Massachusetts. Associated with him is

LOCKWOOD, JOHN S. A.B., M.D. Harvard University Medical School 1932 Assistant in Surgical Research, Presbyterian Hospital, New York. Address Free Hospital for Women, Brookline, Mass. Their subject is "Abnormal Bleeding in Women After the Age of Fifty" Page 1017

BALEONI, GERARDO M. M.D. Harvard University Medical School 1904 Associate Physician, Massachusetts General Hospital Physician, Home for Italian Children. His subject is "The Development in the Treatment of Pulmonary Tuberculosis from 1696 to the Present Time." Page 1020 Address 133 Blackstone Street, Boston, Massachusetts

NISSIN, H. ARCHIBALD A.B., M.D. Harvard University Medical School 1916 Formerly, Assistant Physician, Robert B. Brigham Hospital Member of the Staff and Visiting Physician, New England Deaconess Hospital Assistant Physician, Palmer Memorial Hospital. Former Instructor in Medicine, Harvard Medical School Member of American Association for the Control and Study of Rheumatic Disease. His subject is "Arthritis and Tonsillar Infection" Page 1027 Address 205 Beacon Street, Boston, Massachusetts

BERGLAND, JOHN M. B.S., M.D. Johns Hopkins University School of Medicine 1904 F.A.C.S. Acting Obstetrician in Chief, Johns Hopkins Hospital Acting Professor of Obstetrics, Johns Hopkins University. His subject is "Obstetrical Complications" Page 1033 Ad

dress 1014 St Paul Street, Baltimore, Maryland

DAVIS, MICHAEL M. A.B., Ph.D. Director of Boston Dispensary, 1910-20 Secretary of Committee on Dispensary Development, 1920-27 Director for Medical Services, Julius Rosenwald Fund, Chicago, 1929- Member of Consultant Staff of the Committee on Economic Security, 1934-35 Chairman of the Council of the American Hospital Association Address 4901 Ellis Avenue, Chicago, Illinois Associated with him is

KROEGER, GERTRUD Ph.B. and M.A. (University of Chicago), Dr. rer. pol. (University of Berlin) Medical Social Work and Research in Maternal Hygiene, Michael Reese Hospital, Chicago, Ill., 1926-30 Study of Employment Offices in Germany, University of Chicago and U.S. Department of Labor, Bureau of Labor Statistics, 1931 Research, Health Insurance and Medical Economics, Julius Rosenwald Fund, 1934- Address 4901 Ellis Avenue, Chicago, Ill. Their subject is "Recent Changes in German Health Insurance Under the Hitler Government" Page 1037

MATZ, PHILIP B. See This Week's Issue, page 894, issue of May 9, for record of author His subject is "A Study of Heart Disease Among Veterans IV An Analysis of the More Frequent Types of Anatomic Heart Disease" Page 1042

The Massachusetts Medical Society

ANNUAL MEETING OF THE COUNCIL

The annual meeting of the Council will be held in the Georgian Room of the Hotel Statler, Boston, on Tuesday, June 4, 1935, at 12 o'clock, noon

Business

- 1 Reading record of last meeting in abstract
- 2 Nominating Committee retire to deliberate
- 3 Report of Committee on Membership and Finance
- 4 Reports of committees to consider petitions for restoration to the privileges of fellowship and new committees to be appointed
- 5 Report of the Treasurer
- 6 Reports of Standing Committees and Special Committees
- 7 Election of Officers and Orator by ballot
- 8 Appointment of committees for ensuing year, both Standing and Special

9 Incidental business

ALEXANDER S. BEGG,
Acting Secretary

Boston, May 28, 1935

Councillors are asked to sign one of the two attendance books before the meeting

SECTION OF OBSTETRICS AND GYNECOLOGY*

THOMAS ALMY, M.D.,
Chairman,
140 Rock Street,
Fall River, Mass

C. J. KIRKHAM, M.D.,
Secretary,
524 Commonwealth Avenue,
Boston, Mass

THE USE OF TRANSILLUMINATION IN THE DIAGNOSIS OF BREAST TUMORS

THE basis for the use of transillumination of breast tumors rests upon the opacity of various tissues and media to the light rays. A solid tumor is opaque to the rays, that is, the rays do not penetrate it. A cyst with clear serous contents is much less opaque and allows the transmission of light. Blood is very impermeable and a cyst containing hemorrhagic fluid gives a more or less characteristic dense shadow. Because of the opacity of blood, it is sometimes possible by transillumination to demonstrate the site of small intraductal papillomas. It is also possible to get some information by transillumination as to the character of the growth, a neoplasm showing ill-defined invasive outlines in contrast to the sharper outlines of benign cysts and adenofibromas. The so-called chronic mastitis, e.g., the diffusely shotty breast, gives a diffuse opacity much less marked than that of tumor tissues.

There are certain precautions to be observed in the use of transillumination

- 1 Small atrophic breasts closely applied to the breast wall are not suitable
- 2 Transillumination must be done in an absolutely dark room. Darkening the ordinary room is not sufficient
- 3 The intensity of the source of illumination must be variable. It is a frequent source of error to obscure the shadow by overillumination of the surrounding tissues. In this connection it must be borne in mind that a colloid carcinoma in which the stroma is scanty and the mucinous material predominates may not be opaque
- 4 Sufficient time (3-5 minutes) must be allowed in the dark room to permit accommodation of the pupils before transillumination is attempted

It must be remembered that like many other diagnostic aids, the value of the procedure depends upon correct interpretation of what one sees, which comes only with experience

*A series of short selected articles by members of the Section will be published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the Section.

MISCELLANY

PROSECUTIONS BY THE DEPARTMENT
OF AGRICULTURE

Hart M Allen Laboratories Los Angeles Calif shippers of "Allen's Rheumatic Treatment" were fined \$600 in Federal court at Los Angeles. The information as filed alleged that this firm had shipped its product under a label carrying claims of benefit in rheumatism neuritis sciatica lumbago gout, toothache earache migraine pains of locomotor ataxia, fever and women's ailments. The "treatment" consisting of approximately five grains of acetanilid per tablet, with small amounts of baking soda and caffeine was essentially an analgesic and would have no effect upon the course of the ailments listed. The claims were therefore held to be false and fraudulent and in violation of the law.

Roma Extract Co Boston, Mass solution of citrate of magnesia containing Epsom salts fine \$10 Safe Owl Products Co., Brooklyn, N. Y., camphorated oil in two lots one of which did not conform to the legal standard for that article and both carrying false and fraudulent medicinal claims fine \$75 and the Universal Merchandise Co., Chicago, Ill (Martin Harry and Alfred Gottsegen) Epsom Salt Tablets" owing their effect to other cathartics fine \$50.

The sporadic occurrence of lead in foods entering interstate commerce requires constant vigilance says law-enforcement officials. During April lead in amounts dangerous to health was found in tea 60,000 pounds being seized in jams and jellies of which 1,000 cases were seized and on fresh apples, as a residue from insecticidal sprays with 360 bushels seized. Eleven hundred sacks of dried apple chops adulterated with both lead and arsenic were also confiscated.

Among drugs the Food and Drug Administration reports the seizure of five cylinders of nitrous oxide a gas used for anesthesia, for failure to meet the official standard of purity. A shipment of "aconite and bryonia compound tablets" was seized because it did not conform to its own stated strength being in fact practically inert medicinally.

The following "patent" medicines were seized during April because of the false and fraudulent medicinal claims indicated "A-I-R" (Asthma Instant Relief) for asthma croup bronchitis and hay fever.

Baker's Cough Syrup" for coughs hoarseness influenza, bronchitis croup whooping cough and inflammations of the throat and lungs. "Blanton's Rheumatic Salve" for rheumatism, coughs pneumonia, sore joints swollen muscles and catarrh. "Chalgonia Tablets" for insomnia and sciatica.

Fowlerine for kidney trouble rheumatism and nervousness. Dr. Griggs' Great Blood Tonic for diseases of the blood nervous system liver kidneys, bladder stomach and heart, and women's ailments. "Hale Phosphate of Soda" for stomach and liver derangements and rheumatism. Hart's Swedish Asthma and Hay Fever Medicine for asthma and

hay fever an ichthyol ointment for eczema and carbuncles. "J. H. Mims Iron Tonic" for purifying the blood and for indigestion, pellagra, dropsy eczema and rheumatism. Mother's Salve' for croup, catarrh, piles sores and skin diseases. "Nurse Brand Blood Purifier" for skin affections and sluggish liver. "Requa's Charcoal Tablets" for all stomach troubles rheumatism constipation liver trouble and malaria. "Revigoro Tonic Health Tea" for the restoration of organ gland and tissue and for weight reduction. "Roo-Mo-Rub" for rheumatism sciatica, lumbago and scarlet, typhoid and other fevers. "Thymol Powder" for female disorders and Vin Vigorans a nerve and blood tonic.

FURTHER RECOGNITION OF THE WORK OF
DR. GEORGE R. MINOT AND DR. WILLIAM P. MURPHY

On Thursday May 23 1935 the Humane Society of the Commonwealth of Massachusetts presented a gold medal to Dr. George R. Minot and one to Dr. William P. Murphy in recognition of their successful discoveries in the treatment of pernicious anemia.

Mr. Charles P. Curtis, President of the Society presented the medals under the provision of the fifth clause of an Act of the Legislature enacted in 1791 incorporating the Society.

The clause provides—"that the end and design of the institution of the said society is for the recovery of persons who meet with such accidents as produce in them the appearance of death and for promoting the cause of humanity by pursuing such means from time to time as shall have for their object the preservation of human life and the alleviation of its miseries."

AN ALLEGED CURATIVE TREATMENT OF
TUBERCULOSIS AND OTHER DISEASES

At a meeting held in the State Tuberculosis Sanatorium Uncas-on-Thames Connecticut, Dr. Stephen J. Maher Chairman of the Connecticut Tuberculosis Commission reported the cure of "hundreds of cases of asthma and successful results in the treatment of epilepsy dementia praecox, and chorea by the oral application of the progeny of the avian tuberculosis bacillus.

In addition he claimed that other substances prepared from the killed progeny of human and bovine tuberculosis bacilli possess "demonstrable but differing curative powers over early and late cases of pulmonary tuberculosis in human beings.

The reactions to these claims as reported by the *New York Times* provoked a heated discussion.

Dr. Ingo Galdston of the Medical Information Bureau of the New York Academy of Medicine has commented on Dr. Maher's report as follows:

"The announced cures for so wide a variety of conditions is most startling. However there have been in the past so many similar announcements which time has shown to be so markedly premature that

all we can say at the present time is we hope they are correct

"But we shall have to wait until there is corroborative evidence in science. The burden of the proof lies very much with the claimant.

"In epilepsy and dementia praecox we have two conditions, which up to the present time have baffled the best brains in medicine. Furthermore, as we know to-day, epilepsy is not a definite disease condition, but is rather a symptom associated with a variety of underlying conditions for which it is improbable that there might be a specific remedy."

Dr John A Hartwell, director of the Academy of Medicine, stated that he "endorsed Dr Galdston's statement completely and emphatically."

Further comment seems superfluous

THE APPOINTMENT OF DR MYERSON

Dr Abraham Myerson has been appointed to the position of Clinical Professor of Psychiatry at Harvard University

Dr Myerson graduated from Tufts College Medical School in 1908 and has served as Fellow in Psychiatry and assistant in Neuropathology at the Harvard Medical School

He has been prominent in his chosen field for many years as a consultant, and his opinions have been sought in important legal cases

HOSPITALS IN THE NEW YORK PLAN FOR HOSPITAL CARE

The total number of hospitals in the three-cent a day plan for hospital care in the New York group is now 109

This experiment warrants careful study by other cities for, if successful, it will be of advantage to hospitals and patients

THE FIRST APPLICATION OF THE ANTIRABIC INOCULATION

Joseph Meister, now a helper in the Pasteur Institute of Paris was given the antirabic treatment devised by Pasteur, July 18, 1885, after having been bitten by a dog suffering with rabies

The treatment was given by Dr Grancher under Pasteur's supervision, because it was required by law that only physicians could practice medicine

That demonstration has saved the lives of countless numbers of persons, for this treatment is a recognized resource in dealing with rabies

THE AWARD OF THE LESLIE DANA GOLD MEDAL

The Leslie Dana Gold Medal, awarded annually for outstanding achievements in the prevention of blindness and the conservation of vision, will be presented this year to Dr William H Wilder of Chi-

cago, it is announced by Lewis H Carris, managing director of the National Society for the Prevention of Blindness. Dr Wilder was selected for this honor by the National Society in cooperation with the St Louis Society for the Blind

The medal, offered annually by a director of the St Louis Society, is a prized mark of recognition of service for the conservation of vision. It was presented to Dr Wilder at ceremonies in St Louis on May 18. The medal bears the inscription "Wise Clinician, Devoted Teacher and Humanitarian"

Dr Wilder is secretary-treasurer of the American Board of Ophthalmology, vice-president of the Illinois Society for the Prevention of Blindness, professor emeritus of ophthalmology at Rush Medical College, University of Chicago, and a past president of the American Academy of Ophthalmology and Otolaryngology

The Leslie Dana Medal was awarded last year to Professor F de Lapersonne of Paris, president of the International Association for Prevention of Blindness

A MEMORIAL TO THE MEMORY OF JANE TODD CRAWFORD

The Kentucky State Medical Association has issued invitations to attend the dedication of a monument to Jane Todd Crawford, Heroine of the First Ovariectomy, May 30, 1935, at McDowell Park, Danville, Kentucky

HEALTH OFFICERS' MONTHLY STATEMENT OF VENEREAL DISEASES REPORTED

MARCH, 1935

This statement is issued monthly for the information of health officers in order to furnish current data as to the prevalence of the venereal diseases. The following reports were received from State Health Officers. The figures are preliminary and subject to correction. It is hoped that this will stimulate more complete reporting of these diseases.

The situation in the New England States appears below

State	<i>Syphilis</i>		<i>Gonorrhea</i>	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Connecticut	179	1.09	118	.72
Maine	40	.50	37	.46
Massachusetts	556	1.29	513	1.19
New Hampshire	14	.30	11	.23
Rhode Island	95	1.35	57	.81
Vermont	19	.53	23	.64

—Treasurer Department, Public Health Service

RESUME OF COMMUNICABLE DISEASES
IN MASSACHUSETTS FOR APRIL 1935

MONTHLY REPORT FOR APRIL, 1935

Disease	Apr. 1935	Apr. 5 Yr ago*
Anterior Poliomyelitis	1	1
Chicken Pox	1081	1001
Diphtheria	26	59
Dog Bite	1108	654
Cerebrospinal Meningitis	9	8
German Measles	5695	70
Gonorrhea	508	431
Lobar Pneumonia	539	532
Measles	2159	9138
Mumps	486	549
Scarlet Fever	1079	1000
Syphilis	498	389
Tuberculosis Pulmonary	315	258
Tuberculosis Other Forms	33	33
Typhoid Fever	13	8
Undulant Fever	6	0
Whooping Cough	522	1634

Based on the figures for the preceding five years.

RARE DISEASES

Anterior poliomyelitis was reported from Millbury 1

Dysentery (Amoebic) was reported from Worcester 1

Dysentery (Bacillary) was reported from Worcester 5

Encephalitis lethargica was reported from Sutton 1

Malaria was reported from Newton 1

Epidemic cerebrospinal meningitis was reported from Avon, 1 Fall River 2 Holyoke 1 Lawrence, 1 Leominster 1 Northbridge 2 West Newbury 1 total 9

Pellagra was reported from Attleboro 1

Septic sore throat was reported from Boston 8 Cambridge 1 East Bridgewater 1 Fall River 6 Fitchburg 1 Foxboro 1 Greenfield, 2 Lowell 9 Lynn 1 Medford 1 Northfield, 2 Tyngsboro 1 Waltham 2 Williamstown 2 total 31

Trichinosis was reported from Beverly 1

Undulant fever was reported from Adams 1 Hinsdale 1 West Brookfield 1 Westfield 1 Williamstown 1 Worcester 1 total 6

Diphtheria—In 1907 there was reported a daily average of twenty-six cases—as many as we had for the entire past month.

German measles continues to be reported in epidemic figures greater than ever reported in Massachusetts for these times

Typhoid fever to date has not shown any decrease over last year

Scarlet fever pulmonary tuberculosis tuberculosis

other forms and whooping cough were reported below the five year average

Lobar pneumonia, anterior poliomyelitis, epidemic cerebrospinal meningitis chicken pox and mumps show nothing remarkable

Undulant fever has been reported twelve times for January through April as compared with two each in 1933 and 1934

Rabies continues prevalent throughout the eastern part of the State

CORRESPONDENCE

INFORMATION DESIRED OF AN OPPORTUNITY
FOR PRACTICE45% Fourth Avenue
Brooklyn N. Y.
May 20 1935Massachusetts Medical Society
8 Fenway Boston.

A professional friend has suggested to me that you keep a list of Massachusetts towns needing and desiring a doctor. I am a woman physician resident of Massachusetts graduate of the University of Michigan Medical School with one year's general rotating internship and one year's residency in pediatrics. I plan to do general practice in a small or moderate-sized town and I do not object to the country. I expect to be ready to start practice in the late summer or early fall.

Any suggestions you may be able to offer concerning possible locations will be greatly appreciated.

Very truly yours

MIRIAM J. HOSMER M.D.

HARVARD UNIVERSITY MEDICAL SCHOOL

Courses for Graduates

POSTGRADUATE FELLOWSHIPS UNDER GRANTS
OF THE COMMONWEALTH FUND

May 20 1935

Editor *New England Journal of Medicine*

It may be of interest to the Fellows of the Massachusetts Medical Society to know that the Commonwealth Fund of New York is again offering post graduate fellowships for study at the Harvard Medical School.

The qualifications are that applicants must be graduates of grade "A" medical schools should not be more than forty-five years of age must live in towns not more than 10,000 population, and must have been in practice at least five years.

Fellowships are offered in the following courses: medicine, obstetrics, pediatrics and office surgery. Doctors in Massachusetts who are interested in these fellowships may apply to the Commonwealth Fund, 41 East 5th Street, New York City or to the Assistant Dean, Courses for Graduates, 25 Shattuck Street, Boston.

Yours very truly

LEONOR E. PARKINS.

RECENT DEATHS

PADDOCK — **BRACE WHITMAN PADDOCK, M.D.**, of 435 South Street, Pittsfield, Massachusetts, died at his home, May 22, 1935. Dr Paddock was born in Pittsfield, August 14, 1878, the son of the late Dr Franklin Kittredge Paddock and Anna Todd Paddock. His father was President of the Massachusetts Medical Society, 1894-1896. He graduated from Yale University in 1900 and from the Columbia University College of Physicians and Surgeons in 1904, later serving two years at Roosevelt Hospital as house physician and afterward in the same capacity at Sloane Maternity Hospital. On completion of these appointments he returned to Pittsfield and in 1907 was appointed to the staff of the House of Mercy Hospital, Pittsfield, and since 1931 had been the chief of staff.

He joined the Massachusetts Medical Society in 1907 and was a member of the Council. He was also a Fellow of the American Medical Association. He was elected orator of the 1935 Annual Meeting of the Massachusetts Medical Society and because of illness forwarded the manuscript of his address to the President with the notice of his inability to be present. The paper will be read Wednesday, June 5, by his son.

Dr Paddock had been prominent in Pittsfield medical affairs, and was a past president of the Berkshire District Medical Society. He was assistant director of the Berkshire Life Insurance Company and Surgeon for the Boston and Albany Railroad, a member of the Yale Club of New York and the Pittsfield Country and Riding Clubs. He was especially fond of outdoor life and had enjoyed hunting expeditions in Alaska, Labrador and New Brunswick.

He is survived by his widow, Mrs Elizabeth (Plunkett) Paddock, a son, Franklin K Paddock, now a medical student, a daughter, Miss Elizabeth Paddock, and a sister, Mrs Charles L Hibbard, wife of Judge Hibbard of Pittsfield.

RICHARDSON — **CHARLES HARPER RICHARDSON, M.D.**, of 344 North Street, Pittsfield, Massachusetts, died at his home, May 21, 1935. He was born at New Ipswich, New Hampshire, in 1869, the son of Samuel and Susan Bancroft Richardson. He graduated from the Albany Medical College in 1897, later serving as instructor in this college and assistant surgeon at the Albany City Hospital.

He settled in Pittsfield in 1903 and five years later established Hillcrest Surgical Hospital, serving as surgeon-in-chief until a year ago when he retired.

Dr Richardson joined the Massachusetts Medical Society in 1903 and was also a Fellow of the American Medical Association. He had served as President of the Berkshire District Medical Society, and was prominent as an organizer of the Cancer Clinics in Pittsfield. He was a Mason. His principal diversion was golf.

Dr Richardson is survived by his widow, Mrs

Isabella A. (Akin) Richardson, a daughter, Mrs Lambert L Borden of New York City, a brother, George Richardson of San Francisco, and a sister, Mrs Helen R Brown of San Diego.

NOTICE

ANNOUNCEMENT

LUCILE LORD-HEINSTEIN, M.D., is resuming the practice of medicine at 402 Columbia Road, Dorchester, Massachusetts.

REPORTS AND NOTICES OF MEETINGS

MASSACHUSETTS TUBERCULOSIS LEAGUE

ANNUAL MEETING, APRIL 29, 1935

*Address by Henry D Chadwick, M.D.,
State Commissioner of Public Health*

It is always a pleasure to meet with the representatives of the League and its local organizations throughout the State. I have listened with interest to the reports made by Dr Frederick T Lord, President, Mr Frank Kiernan, Executive Secretary, and Miss Jean V Latimer, Educational Secretary. I think they all show substantial progress during the year. The work is going on satisfactorily but we still have things to do. In no other part of the country have the volunteer tuberculosis organizations worked so closely in harmony with the official agencies as in this Commonwealth.

There are now 4,100 beds in public sanatoria available in Massachusetts, but this is not enough although it far exceeds the standard set some years ago by the National Tuberculosis Association of one bed for each annual death. At this time many patients are waiting to gain admission to sanatoria. The number of deaths from tuberculosis is decreasing year by year, but the number of cases reported is on the increase. This does not mean that there are actually more cases of the disease, it indicates that through improved diagnostic methods more cases are being brought to light. Then, also, the doctors are becoming more tuberculosis conscious. In my opinion we will soon reach the peak of reported cases. There is some evidence that points that way.

At the Veterans' Hospital at Rutland, they have set aside 100 beds that were provided for tuberculosis patients, to be used for other diseases, because the number of tuberculosis cases among veterans has shown a marked decline.

The reason why sanatorium beds are now more in demand than ever before is because patients know that they can get the most modern methods of treatment in our institutions. These improved methods of treatment attract the patients, are much more effective, and to a considerable degree have contributed to the decreasing death rate. More tuberculous patients are getting well from their disease than ever before.

With improved case-finding methods it is necessary that we should have an adequate number of beds to take care of the cases as soon as they are discovered. It is useless to find patients unless something can be done for them when they are found. The horn of plenty is being opened up in Washington and we hope will give us means whereby we can have 450 new sanatorium beds in Massachusetts. 250 of these will be replacements making a net increase of 200 or a grand total of 4300 which should be enough to take care of all patients promptly.

In 1900 there were 253 deaths per hundred thousand from tuberculosis. This was reduced at the rate of 7 points per year for the next ten years and in the second decade at the rate of 6 points the third decade by 5 points and in the fourth decade it has been reduced by 3 points per year. The rate is now 48 per 100,000. There will come a time when it will be even more difficult to lessen the number of cases per year at the same rate as we are now doing.

By taking out of the community sources of infection we are thereby reducing the number of new cases. We are not propagating tuberculosis as fast now as was done in the past. With less seed planted there will be fewer cases of tuberculosis to require care and treatment in the future.

The National Tuberculosis Association and its affiliated associations have had a lot to do with the successful tuberculosis program which has been carried on for the past twenty-five years. The sustained public interest in tuberculosis activities is very well shown by the continued success of the Christmas Seal sale.

As tuberculosis continues to decrease we will find that the last stages of the conquest of this disease will be the most difficult. This should spur us on to greater efforts not only to maintain our gains but to steadily advance the front line of attack. Someone has said that it takes a long time to do a difficult thing but to do an impossible thing takes a little longer.

MASSACHUSETTS TUBERCULOSIS LEAGUE ANNUAL MEETING APRIL 29 1935

ADDRESS BY DR. ALTON S. POPE, DIRECTOR, STATE
DIVISION OF TUBERCULOSIS

About a year before the termination of the Ten Year period which was agreed upon with the Legislature for the state to carry on school clinics it was decided that in view of the success of the program it would be continued under local auspices. This involved the coöperation of the county and municipal sanatoria, the local school departments, the local health departments and the voluntary tuberculosis associations. It was felt that under the new arrangement the examination of the children should be carried on in the 7th, 9th, and 11th grades. Those grades were selected because out of the experience of ten years we know that more tuberculosis was found in those grades than in the lower school ages.

I will give a brief résumé of the progress which has been made in the first year of this work under local auspices. In Worcester County Dr. Edson W. Glidden and his associates and the tuberculosis associations of Northern and Southern Worcester County have done an outstanding piece of work in examining the children in practically all of the county towns. In Middlesex County Dr. Remick and his associates began the examinations in November 1934 and are doing a thorough job. Not all of the towns will be examined this year because the state clinics worked in a number of the towns in 1933 and 1934. Norfolk County began work about two months ago. Hampshire County has already started and Barnstable County towns were done last fall. Essex County also started x-raying about a month ago. The Plymouth County Sanatorium has recently begun school examinations in that area.

In the western part of the state Westfield has completed x-raying in Berkshire and Franklin counties and most of the towns in Hampden County. Rutland Sanatorium started x-raying in Fitchburg and is going ahead with Athol and Gardner. Lakeville Sanatorium consents are in for towns in Southern Bristol and Southern Plymouth counties. The City of Worcester has taken over its own school work. They began x-raying last fall and the work will be completed by the end of the school year. The testing is done in the schools and the reactors transported to the Belmont Sanatorium. This is done to have the advantage of the x-ray equipment at the hospital. The work in Cambridge, Lowell, Lawrence and Haverhill has been carried on largely by the North Reading Sanatorium.

There is a tremendous field for the voluntary associations in preparing the ground for the school work. No type of clinic work can continue on on its own momentum. Someone must keep up the contact with the Boards of Health and the School Committees. Unless this is done the interest will lapse in a short time. The success of the work will depend to a considerable extent on the continued active support of the local tuberculosis associations.

In an average period of six to seven years it has been found that 3 per cent of the children with tuberculosis lesions of the childhood type have developed pulmonary tuberculosis. This rate is four times as high as that found in children with no lesions who reacted to the tuberculin test, and twelve times as high as that found in children with a negative tuberculin test.

The school clinics have brought out the importance of family contact in tuberculosis. The incidence of pulmonary tuberculosis is forty to fifty times as high among children with known family exposure to tuberculosis as among those without known contact. We recently had supplementary information from Dr. Remick which shows the importance of contact among adults and children. Among one hundred and forty-four families it was found that in the age group from infancy to twenty years, $3\frac{1}{2}$ per cent had pulmonary tuberculosis in the age group twenty to forty. It was found that 12 per cent had pulmonary

tuberculosis, and in the group of forty to sixty years, 15 per cent had pulmonary tuberculosis

These findings emphasize the importance of going back to the source of infection in every case of tuberculosis found. The school clinic work to be completely effective must do the same thing. This also reaffirms our belief in the desirability of the school clinics and we ask your continued cooperation in developing and strengthening them on the present basis

NEW ENGLAND PHYSICAL THERAPY SOCIETY

At the Annual Meeting of the New England Physical Therapy Society held at the Hotel Victoria on May 15, 1935, the following officers were elected for the ensuing year

President Charles W. McClure, M.D., Boston, Mass

1st Vice-President George B. Carr, M.D., Lynn, Mass

2nd Vice-President George B. Rice, M.D., Boston, Mass

Secretary Arthur H. Ring, M.D., Arlington, Mass

Treasurer Franklin P. Lowry, M.D., Newton, Mass

Councillors for three years William D. McFee, M.D., Boston, Mass, Edward H. Baxter, M.D., Hyde Park, Mass

Claude L. Payzant, M.D., of Boston, addressed the Society on "The Problem of Back Strain." A round table discussion followed

The June meeting of the New England Physical Therapy Society will be omitted to allow the members to attend the program of the Section of Radiology and Physiotherapy of the Massachusetts Medical Society on Monday afternoon, June 3, at 2:30 o'clock, in the Ball Room Assembly of the Hotel Statler. All members are urged to attend this outstanding program

ARTHUR H. RING, M.D., *Secretary*

THE NEW ENGLAND ROENTGEN RAY SOCIETY

The April meeting of the New England Roentgen Ray Society was held April 26, 1935, at the Children's Hospital in Boston. The program was presented by Dr. E. C. Vogt, roentgenologist to that hospital

The society was addressed by Dr. Sidney Farber, Pathologist to the Children's Hospital, who spoke on some aspects of the problem of sudden death in early life. Dr. Farber enumerated some of the causes of sudden death from his experience in conducting postmortem examinations in such cases. Congenital anomalies involving the cardiovascular or respiratory systems may bring about unexpected death in the course of an acute infection. Death may be caused by asphyxia following aspiration of food, milk, or other foreign substances or by fulminating infections due to a variety of organisms and com-

monly by the streptococcus. The clinical histories in such cases may be erroneous because of a lack of proper observation of the patient. Death may follow an improperly administered anesthetic during a surgical procedure. The speaker took the opportunity of summarizing some of the evidence against the diagnosis "thymic death." From the work of Edith Boyd, Hammar, and the British Commission, which investigated the problem, and from the experience of various workers in the Children's Hospital, it appears quite certain that the diagnosis "thymic death" has no justification. That diagnosis is based upon a misconception of the size of the normal thymus. The various clinical services, the department of roentgenology and the department of pathology at the Children's Hospital take a firm stand on the thymic question. For many years no routine x-ray studies have been made of the thymus and no preoperative radiation of the thymus has been observed in the hospital. In over twenty two hundred postmortem examinations at the Children's Hospital an adequate cause for death has been found in all cases, including a number where the thymus appeared large. The normal, well-nourished infant or child possesses a large thymus and an abundant amount of lymphoid tissue throughout the body. Dr. Farber made a plea for careful postmortem examinations in every case of sudden death. He expressed the hope that the diagnosis, status thymicolymphaticus, will be dropped in view of data assembled from different parts of the world, and that hospitals and medical men will take a common stand on this vexatious question.

The second presentation was by Miss Vernetta Vickers, representing the clinic of Dr. Harold Stuart. In Doctor Stuart's clinic of well babies an attempt is being made to study the normal development of children from many angles. Miss Vickers gave a summary of the knowledge being acquired concerning the ossification of the epiphyses of bones as studied by the x-ray. The children were x-rayed at birth, three months, six months, nine months and one year. Thereafter, they were examined at six months' intervals, and for accuracy always within a day or two of the birthday. During the four years that the study had progressed, 162 children had been selected for examination, about equally divided as to sex. It had become apparent from a tabulation of the results, that there was to be no correlation between the age of the child and the number of visible ossified epiphyses present. In other words, no anatomical age of a growing child could be established on this basis. The order of appearance is always the same in the sexes, although the females tend to be more regular, and the females are usually a few months ahead of the males in the establishment of any given visible epiphysis. All members of the same family followed the same pattern in the appearance of the epiphyses by x-ray. Illness tended to delay the unfolding of the epiphyses but not the order of appearance. Miss Vickers' conclusions on the work so far were that there was a great variation in the time of appearance of any

given epiphyses and that no conclusions could be drawn from the examination of an individual child except within broad limits

Doctor Vogt concluded the meeting with a discussion of the problem of congenital dislocation of the hip as presented to the roentgenologist. He pointed out the remarkable change in the outlook of this deformity. Whereas forty years ago congenital dislocation of the hip was regarded as a hopeless condition a recent analysis of the cases at the Children's Hospital showed a satisfactory result in 78 per cent after reduction. In spite of this advance in the knowledge of treatment very little had been added to an understanding of the cases. Many questions had yet to be solved. Ninety per cent of the cases occur in girls and forty per cent are bilateral. Is the deformity a result of inherent defect in the transmission of the germ plasma, or is a normal germ disturbed by extraneous forces? Apparently heredity has little direct bearing on the appearance of the deformity. The extremities and their joints are completely formed by the end of the second month of embryonic life and the question then arises as to whether the dislocation is one of primary malformation of the joint or whether the dislocation is the result of forces exerted in the amnion during later fetal life. By definition a congenital dislocation of the hip must be present at birth. Doctor Vogt felt that there was good evidence to believe that some cases of so-called congenital dislocation really occurred after birth. He then brought out the changes to be expected in the acetabulum following dislocation of the head of the femur. He showed serial films of dislocations known to have occurred after birth from such causes as spina bifida. In these cases the acetabulum gradually becomes more and more shallow. With replacement, the acetabulum again gradually assumes its normal depth. Doctor Vogt showed serial films of true congenital dislocation of the hip followed almost since birth. In this condition one should expect the same sequence of events as occurs in the cases of known acquired dislocation. Since dislocation of the hip is rarely suspected in childhood few x-ray examinations are made until the child begins to walk. No conclusions can be drawn as to the exact time that a dislocation may have occurred from x-rays taken several months after birth. It is felt that the greatest single factor in successful treatment of the condition is early diagnosis.

THE WORCESTER NORTH DISTRICT CANCER CLINIC

A special diagnostic clinical conference was held at Burbank Hospital Fitchburg May 16 with Dr Joe Vincent Meigs surgeon of Pondville Hospital as consultant, and members of the Worcester North District Medical Society as guests.

Eighteen cases including three from the hospital wards were presented twelve new clinic patients and three old clinic patients of the new patients ten were referred by physicians two by newspapers.

Diagnosis (new patients)

Cancer primary	1
Cancer recurrent	1
Deferred	5
Precancerous lesions	1
Benign tumors	3
Other conditions	1
Old patients changed	
deferred to cancer	1

Members of the District Society are cordially invited to bring or send patients to the clinics for diagnosis and advice as to treatment!

WORCESTER NORTH CANCER COMMITTEE.

Fitchburg May 20 1935

MASSACHUSETTS MEDICO-LEGAL SOCIETY

The Massachusetts Medico-Legal Society will meet Tuesday June 4, at the Hotel Statler Boston at 2 00 P.M.

Dr Edgar R. Frankish Medical Examiner for the Province of Ontario will give an address on the habits and customs of his office. Dr William F. Boos will speak on "What is Normal Arsenic?"

Fritz W. Gay M.D.

President

MYRTLE M. CANAVAN M.D.

Secretary Treasurer

THE TWENTYFIFTH CLINICAL CONGRESS OF THE AMERICAN COLLEGE OF SURGEONS

For the twenty fifth annual Clinical Congress October 28-November 1 the surgeons of San Francisco and Oakland have organized under the leadership of a representative committee with Dr Howard C. Naffziger as chairman and are preparing a clinical program that will adequately present the surgical activities of that great Pacific coast medical center.

The Congress will open Monday morning at 10 o'clock with the annual hospital conference at the Fairmont Hotel. Clinics at the hospitals are scheduled for Monday afternoon at 2 o'clock and will be continued during the following four days both morning and afternoon. A comprehensive and varied program of operative clinics and demonstrations representing all departments of surgery is being prepared. This will include a special series of clinics in surgery of the eye ear nose and throat. The committee is also preparing programs for four morning sessions at which distinguished ophthalmologists and otolaryngologists will present and discuss subjects of clinical interest.

Programs are being arranged for five evening meetings at which eminent surgeons of the United States and Canada and a number of distinguished visitors from abroad will present and discuss papers dealing with surgical subjects of present-day importance. Plans are being made also for conferences on cancer fractures, and industrial medicine and traumatic surgery. The president-elect Dr Donald C. Balfour of Rochester Minnesota, will be inaugurated at the presidential meeting on Monday.

evening At the annual convocation of the College on Friday evening, when the 1935 class of candidates for Fellowship will be received, the Fellowship address will be given by Dr Robert Gordon Sproul, president of the University of California

Headquarters will be established at the Fairmont and Mark Hopkins Hotels, the registration and information bureau, scientific and technical exhibitions, executive offices, etc, being located at the former Ample first-class accommodations are available at nearby hotels The railroads have authorized low round trip rates from all sections of the country

Attendance will be limited to a number that can be readily accommodated at the clinics so that registration in advance is necessary

GEORGE CRILE,

Chairman, Board of Regents

MASSACHUSETTS ALUMNI OF UNIVERSITY OF MARYLAND MEDICAL SCHOOL, BALTIMORE MEDICAL COLLEGE, AND COLLEGE OF PHYSICIANS AND SURGEONS, BALTIMORE

The Annual Luncheon Meeting will be held at the University Club, Boston, Tuesday, June 4, at 12 30 PM

Make reservations through Dr Charles W Finerty, 395 Commonwealth Avenue, Boston

CHARLES E GILL, M.D., *Secretary*

AMERICAN RADIUM SOCIETY

ATLANTIC CITY—JUNE 10 AND 11, 1935

Place of Meeting—Vernon Room, Haddon Hall

Monday Morning, June 10, 1935

Symposium on Radium Packs

Chairman, William H Cameron, M.D., New York
Tissue Doses in Teleradium Therapy G Failla, Ph D, New York

Advantages and Disadvantages of Radium Packs
Ira I Kaplan, M.D., New York

Advantages and Disadvantages of Radium Packs
James J Duff, M.D., New York.

Advantages and Disadvantages of Radium Packs
Burton T Simpson, M.D., Melvin C Reinhard (By invitation), Buffalo, New York

Monday Afternoon Session

Symposium on Biopsies

Advantages and Limitations of Various Types

Chairman, Robert B Greenough, M.D., Boston

Incisional Biopsy John M Hanford, M.D. (By invitation), Cushman D Haagensen, M.D. (By invitation), New York

Aspiration Biopsy Hayes E Martin M.D., Fred W Stewart, M.D. (By invitation), New York.

Endothermy Biopsy Grant E Ward, M.D. (By invitation), Charles Geschickter, M.D. (By invitation), Baltimore

Tuesday, June 11, 1935

Morning Session

Symposium on Breast Cancer

Chairman, George W Grier, M.D., Pittsburgh

Indications for Radical Surgery Hugh Auchincloss, M.D. (By invitation), New York.

Interstitial Radiation. Orville N Meland, M.D., Los Angeles

Preoperative Radiation Frank E Adair, M.D., Fred W Stewart, M.D. (By invitation), New York

Radiotherapy in Inoperable, Metastatic and Recurrent Cases A U Desjardins, M.D., Eugene T Leddy, M.D., Rochester, Minn.

Ovarian Irradiation in Cancer of the Breast. Richard Dresser, M.D. (By invitation), Boston

Tuesday Afternoon Session

Miscellaneous Problems

Technic of Radium Treatment of Cancer of the Rectum H. H. Bowling, M.D., R. E. Fricke, M.D., Rochester, Minn

Technic of Radium Treatment of Cancer of the Body of the Uterus Henry Schmitz, M.D., Herbert Schmitz, M.D. (By invitation), Chicago

Radium in Primary Carcinoma of the Female Urethra L. A. Pomeroy, M.D., Cleveland

Developmental Changes Following Irradiation. William S Newcomet, M.D., Philadelphia

Cavernous Angioma, Treatment by Radium and Other Methods William L Clark, M.D., Philadelphia

Vernal Catarrh and Its Response to Radium Treatment E. P. Pendergrass, M.D., J. R. Andrews, M.D. (By invitation), Philadelphia

Diagnosis and Treatment of Malignant Tumors of the Nasal Sinuses G. A. Robinson, M.D., New York

THE ACADEMY OF PHYSICAL MEDICINE

ANNUAL MEETING

The Claridge Hotel, Atlantic City, N. J.

June 12 and 13, 1935

PROGRAM

WEDNESDAY MORNING, JUNE 12, 1935

Rose Room

Business Session

9 o'clock

Scientific Session

9 30 o'clock

- (1) The Effect of Radium Irradiation on the Electrophoretic Velocity, Viability and pH of *Escherichia Coli* Suspension K. Pierre Dozios, M.S., Grant E Ward, M.D., and Frank Wilson Hachtel, M.D., Baltimore, Md. (Slides will be shown)

Discussion Charles Whelan, M.D., Boston, Mass

- (2) Body Mechanics in Relation to Arthritis a Re-Statement. John G. Kuhns M.D., Boston Mass. (Slides will be shown)
Discussion Harold D. Corbuser M.D., Plainfield N. J., and George E. Deering M.D. Worcester Mass.
- (3) Present Mode of X-ray Therapy in Malignant Disease. Frederick William O'Brien M.D. Boston Mass.
Discussion George E. Pfahler M.D., Philadelphia, Pa., Richard T. Powers M.D. Springfield Mass., and Herman A. Osgood M.D. Boston Mass.

WEDNESDAY AFTERNOON

Rose Room
2 o'clock*The President's Address*William Lawrence Clark, M.D. F.A.P.M.,
Philadelphia, Pa.

President of the Academy of Physical Medicine

- (1) Duodeno-Biliary Drainage with a Discussion of Its Diagnostic and Therapeutic Values. William A. Swalm M.D., and Charles-Francis Long M.D. Philadelphia, Pa. (Slides and motion pictures will be shown.)
Discussion Sara M. Jordan M.D. Boston Mass. William H. Watters M.D. Boston Mass., and Miami Fla.
- (2) The Therapeutic Effects of Short Wave Ultra Violet Radiation in Dermatological Practice. Francis P. McCarthy M.D., Boston Mass.
Discussion Francis M. Thurmon M.D. Boston Mass., and Franklin P. Lowry M.D. Boston Mass.
- (3) Radiation Therapy in Endocrine Disturbances. Gustav Bucky M.D. New York N. Y.
Discussion Thomas L. Smyth M.D., Allentown Pa.

WEDNESDAY EVENING JUNE 12 1935

7 o'clock

Informal Round Table and Dinner Meeting

(The details to be announced later)

THURSDAY MORNING JUNE 13 1935

Rose Room

Business Session
9 00 o'clock*Scientific Session*
9 30 o'clock

- (1) The Treatment of Gonorrheal Arthritis by Means of Systemic and Additional Focal Heating. William Bierman, M.D., and Carl L. Lovenson M.D. New York, N. Y. (Slides will be shown.)
Discussion William H. Schmidt M.D., Phil-

adelphia, Pa., William G. Curtis M.D. Wollaston Mass.

- (2) The Place of Colonic Therapy in Treating the Mentally Ill. Harold K. Marshall M.D., Gardner Mass.
Discussion James W. Wiltzie M.D. Binghamton N. Y. and Rolland A. Case M.D., Cleveland Ohio.
- (3) A Scope of Diagnostic Roentgen Therapy in Neoplastic Diseases. J. Gershon-Cohen M.D. Philadelphia, Pa.
Discussion Joseph Scattergood, Jr., M.D., West Chester Pa. George L. Schneider, M.D., Williamsport, Pa.
- (4) Modern Therapy in Peripheral Nerve Pathology. William D. McFee M.D. Boston Mass.
Discussion Arthur H. Ring M.D. Arlington Mass. and Robert E. Peck M.D. New Haven, Conn.

THURSDAY AFTERNOON JUNE 13 1935

Rose Room
2 o'clock

- (1) Passive Vascular Exercise in the Treatment of Peripheral Vascular Disease. Frank Hammond Krusen M.D., Philadelphia, Pa.
Discussion Frank H. Ewerhardt, M.D. St. Louis Mo., and William J. Schatz, M.D., Allentown Pa.
- (2) Neoplastic Lesions of the Accessory Sinuses and Orbit, and Their Treatment by Combined Methods. William L. Clark M.D. Philadelphia, Pa.
Discussion Grant E. Ward M.D. Baltimore, Md., Benedict F. Boland, M.D. Boston, Mass. and William H. Gulllum M.D., Asbury Park N. J.
- (3) Electrosurgical Procedures in Dermatology. Anthony D. Cipollaro M.D., New York City.
Discussion Austin W. Cheever M.D., Boston Mass.
- (4) Recent Experience with Short Wave Therapy. William H. Schmidt, M.D. Philadelphia, Pa.
Discussion John Savery Hibben M.D., Pasadena, Cal. Frank Hammond Krusen, M.D., Philadelphia, Pa. and Robert C. Hughes M.D., Paoli Pa.

SOCIETY MEETINGS CONGRESSES
AND CONFERENCESCALENDAR OF BOSTON DISTRICT FOR THE WEEK
BEGINNING MONDAY JUNE 3 1935

Monday June 3—

12 30 P.M. Harvard Medical Alumni Association
Hotel Statler Boston Parlor D
1 30 P.M. Tufts Medical School Alumni Association.
University Club Boston.

Tuesday June 4—

1 30 P.M. Massachusetts Alumni of University of Maryland Medical School Baltimore Medical College and College of Physicians and Surgeons,
Baltimore University Club Boston

- 2 P M Massachusetts Medico-Legal Society Hotel Statler Boston
- 12 30-4 P M Ward Visit, Massachusetts Eye and Ear Infirmary
- Thursday, June 6—
- *12 M Clinico-Pathological Conference Massachusetts General Hospital
- *12 M Clinico-Pathological Conference Children's Hospital
- Saturday, June 8—
- *10-12 Staff rounds at the Peter Bent Brigham Hospital Open to practicing physicians
- *Open to the medical profession
†Open to Fellows of the Massachusetts Medical Society
- June 3—Harvard Medical Alumni Association will meet in Parlor D, Hotel Statler, Boston at 12 30 P M
- June 3—Tufts Medical School Alumni Association will meet in the President's Room at the University Club, Boston, at 12 30 P M
- June 4—Massachusetts Medico-Legal Society See page 1065
- June 4—Massachusetts Alumni of University of Maryland Medical School, Baltimore Medical College and College of Physicians and Surgeons Baltimore See page 1066
- June 10—American-Canadian Medical Golfers Play at Atlantic City For details write Bill Burns, Executive Secretary 4421 Woodward Avenue, Detroit.
- June 10 and 11—American Radium Society See page 1066
- June 10 and 11—American Proctologic Society will meet at the Marlborough-Blenheim Atlantic City For information address Frank G Runyeon, 1361 Perkiomen Avenue, Reading Pa
- June 10 and 11—The Certified Milk Producers Association of America will meet in Atlantic City N J Information may be obtained on application to Dr Harris Monk, 360 Park Place Brooklyn, New York
- June 11—American Heart Association The Eleventh Scientific Session will be held from 9 30 A M. to 5 30 P M., at the Hotel Claridge, Atlantic City, N J The program will be devoted to various subjects on cardiovascular disease Gertrude P Wood, Office Secretary, 50 West 50th Street, New York, N Y
- June 11—American Neisserian Society will meet at the Hotel Claridge Atlantic City, New Jersey
- June 12 and 13—Academy of Physical Medicine Annual Meeting See page 1066
- June 17-19—The Medical Library Association will meet in Rochester New York. For information address Miss Frances N A Whitman Librarian Harvard University Schools of Medicine and Public Health, Boston, Mass
- June 17 to 21—Convention of the Catholic Hospital Association will be held at Creighton University Omaha Nebraska. For information address the Most Reverend Joseph Francis Rummel D D Bishop of Omaha.
- June 24 28—American Urological Association and Western Branch Society, American Urological Association, will meet at the Palace Hotel San Francisco, California For details write Dr Charles P Mathé, 450 Sutter Street, San Francisco California
- June 27 29 Inc—British National Association for the Prevention of Tuberculosis will be held at Southport, England Persons desiring further information should write to Miss F Stickland, Secretary of the Association at Tavistock House North Tavistock Square, London, W C I, England
- July 1-23—University of Freiburg i Br will hold a vacation course of the medical faculty For information address Akademische Auslandsstelle der Universität Freiburg i Br, Schwimmbadstrasse 8 Germany
- July 22 27—Seventh International Congress on Industrial Accidents and Diseases, Brussels, Belgium The American Committee of the Congress is under the chairmanship of Dr Fred H Albee New York for the Section on Accidents, and that of Dr Emery R Hayhurst, Columbus Ohio, for Industrial Diseases The American delegation to the Congress will sail from New York on July 8 and visit London, Amsterdam, The Hague and Paris, and, optionally, Budapest Physicians interested in the Congress or in the medical tour in conjunction with it, may address the Secretary, Dr Richard Kovacs, 1100 Park Avenue, New York City
- October 7 10—American Public Health Association will meet in Milwaukee Wisconsin For information address the American Public Health Association, 50 West 50th Street New York City
- October 21 November 2—1935 Graduate Fortnight of the New York Academy of Medicine See page 893, issue of May 9
- October 28 - November 1—The Twenty-Fifth Clinical Congress of the American College of Surgeons See page 1065

BOOK REVIEWS

CORRECTION

In the Book Review "Definite Diagnosis in General Practice" which appeared on page 962, issue of May 16, 1935, third paragraph, twenty first line, the word "hypometabolism" appeared The correct word should have been "hypermetabolism", so that the sentence will read "Under hypometabolism is listed only colloid goitre with no mention of myxedema, on the other hand hypermetabolism includes adenomatous and exophthalmic goitre and no mention is made of the leukemias or cardiac failure"

The 1934 Year Book of Radiology Diagnosis edited by Charles A. Waters Therapeutics edited by Ira I Kaplan 512 pp Chicago The Year Book Publishers, Inc \$4 50

This the third year book of Radiology is again an adequate and valuable yearly abstract of Radiological Diagnosis and Radiotherapeutics as these subjects appear in various foreign and American journals The volume is composed of 512 pages, properly indexed and copiously illustrated The illustrations reduce the reading matter so that one is surprised to find it possible to read the selected abstracts of all that the authors consider important in Radiology during 1934 within two short evenings This edition is less impressive than the previous editions, and the authors attribute this reduction in contents to political and economic conditions

The Care of the Aged, the Dying and the Dead Alfred Worcester 77 pp Springfield and Baltimore Charles C Thomas \$1 00

Probably Alfred Worcester better than almost any man in New England could manage, three lectures on the last of life and on death itself Steeped as he is in the humanities, in the philosophy and art of medicine during a long activity he speaks with that authority, that kindly persuasion that comes only from many and varied experiences at the bedside and in the family There is no question but that this little book will be read not only by students, to whom it must appeal, but by many men of many types

Synopsis of Genito Urinary Diseases Austin I Dodson 275 pp 111 illustrations St Louis The C V Mosby Company \$3 00

This book of 275 pages is a synopsis of genito-urinary diseases It should be a helpful guide to the understanding of basic principles of urology In this respect the medical student may find it of some aid However it is much too abbreviated for use as a "Handy Reference" to the average physician in practice

The book is divided into fourteen chapters Subjects such as urologic diagnosis, instruments, renal tumors, and renal stones are very briefly touched The cost of the book (\$3 00) is a bit excessive

The New England Journal of Medicine

VOLUME 212

JUNE 6 1935

NUMBER 23

The Massachusetts Medical Society

POSTGRADUATE MEDICAL EDUCATION*

BY BRACE W. PADDOCK, M.D.†

I CONSIDER it a great honor to have been asked to deliver the Annual Discourse at this meeting of the Massachusetts Medical Society. When I think of the calibre of the men who have preceded me as orator I am overcome with a great sense of humility. I am very grateful for this opportunity to speak before you. I present this address, on a general practitioner's view regarding certain phases of medical education, humbly and with full knowledge that what ever is said before luncheon is almost invariably forgotten by the time that repast is finished.

When or how the idea of Postgraduate Medical Education was born and first developed in this country is lost in the dim past. The movement seems not to have been started by any medical school medical society, or as an accepted element in medical training but rather to have been initiated by physicians or groups of physicians of great knowledge and wise judgment who recognized the weaknesses of the teaching of their day and who undertook on their own responsibility without any support from the medical associations or from the state to correct these defects. Such men were pioneers of outstanding ability and we should never forget the debt of gratitude we owe them. In the Massachusetts Medical Society, particularly, must we always feel proud of our first president, for his varied accomplishments. John Warren, in 1782, realizing the lack of properly trained surgeons in the War of the Revolution commenced in Boston the systematic teaching of Surgery and Anatomy at the Military Hospital which he commanded. This may be regarded as the first American attempt at organized post graduate instruction.

The first undergraduate school of Medicine in the United States was established in the University of Pennsylvania in 1765. Since then Philadelphia has remained a noted medical center. It is therefore most fitting that this University also should have been a leader in graduate medical education by opening in the Fall

of 1920 the first fairly comprehensive group of systematic graduate courses in medicine to be offered by any medical university in the United States.

In the year 1872, an effort was made on the part of several New York medical men who had studied abroad to develop postgraduate medical teaching in New York City. At the time it was the custom for a certain class or group after taking hospital courses at home, to visit foreign medical centers spending six months to two years at one or more of them. Berlin, Vienna, Prague, London and Edinburgh were the chief places thus utilized for postgraduate study and of these Vienna was the most popular, for more could be seen and accomplished there in a given time than at any other medical center. Eventually as a result of work of this nature there was incorporated the Alumni Association of the College of Physicians and Surgeons in 1873, and it was hoped that out of this Association there might be developed a center of postgraduate teaching, but not until 1877 was such teaching finally started. Out of this grew the New York Polyclinic in 1882 and at the same time the New York Post Graduate Medical School was started. Gradually other hospitals and committees in New York City took up the work of postgraduate education and in 1924 amalgamated into the New York Academy of Medicine.

In Chicago in the year 1892 a small group of physicians, druggists and chemists met two evenings a week to study bacteriology, histology, microscopy, clinical diagnosis and urinalysis. At that time inquiry at the Post Graduate Medical School and Polyclinic disclosed the fact that only about a dozen physicians out of a total of two thousand in the city had taken courses in these institutions during the past year. Beginning in 1921 practically all the southern medical schools broadened their policies from year to year to meet the growing demands of postgraduate medical instruction.

This country is not alone in its endeavor to increase postgraduate medical education. In England the Fellowship of Medicine and Post Graduate Medical Association of London provides instruction to qualified physicians in the

*The Annual Discourse delivered at the Annual Meeting of the Massachusetts Medical Society, Boston, June 6 1935 by his son because of the recent death of Dr. Paddock.

†Paddock, Brace W.—Chief of Staff, House of Mercy Hospital, Pittsfield. For record and address of author see "This Week's Issue," page 1935.

hospitals of that city. It is affiliated with fifty hospitals containing 6,000 beds and instruction is provided in every field of medicine. Twenty-seven of the hospitals in London offer about sixty special courses each year. In the general hospitals these consist of two weeks of intensive work in general medicine, surgery, or a single division of clinical medicine. In the special hospitals the courses are limited to the particular field of the hospital. None of these courses give a degree or certificate. The Association also collates and publishes the many lectures and demonstrations scheduled in the city in all institutions and keeps in touch with the programs of postgraduate training in the other teaching centers in the British Isles.

The courses mentioned above are convenient for physicians in the cities, but not for those in the smaller cities and in the country who cannot afford the time and money to attend. Very little effort has yet been made to provide continuation education for these physicians which would allow them to attend their practices. Nothing like an extension plan of education has been developed.

In France most of the regular clinics, lectures and demonstrations in the French hospitals are open to qualified practitioners, and a large number of doctors attend the lectures in some of the well-known clinics. There is no organized effort however to keep the main body of the profession informed on current methods of diagnosis and treatment.

In Germany there is an unofficial plan of continuation training which has been worked out by the medical profession. The present plan originated in Prussia in 1901 with the organization of a central committee for medical postgraduate work for the state. Similar committees were formed in the other German states and in 1908 a central committee was organized. To reach the largest number of doctors the teaching was made as widespread as possible. In places where there were large hospitals the matter was comparatively easy, in the smaller places and in the country, the system of traveling teachers was adopted. The hours of teaching were arranged to suit the doctors so as not to interfere with their work. From noon until 2 o'clock, in the evening after 7, and Sunday mornings are the favorite times. The courses are free in order to attract the largest number of doctors though there are many who think that what must be paid for will be valued more than that which is given free. This means lack of compensation for the teachers, but there is a widespread spirit of self-sacrificing cooperation to make the matter of postgraduate education possible.

Local committees are formed of representatives of the state, of the municipal boards, of the universities, of the hospitals, and of the medical profession and medical societies. These

committees receive funds through the government in question who realize that it is in the interests of health of the entire population to have a well-educated medical force.

In the university towns the medical facilities take over these tasks while in other towns the large hospitals are usually the center points. In the smaller towns traveling lecturers are sent out from the centers of learning, singly or in groups, who give lectures to the smaller medical societies. The radio is also used in a half hour talk every Friday evening, given by the most prominent authorities. A periodical for medical advancement is published which in contrast to the scientific periodicals is devoted to the higher education of practicing doctors. It concerns itself only with such matters as have received scientific recognition and can be of use in general practice.

The *American Medical Journal* in 1899 estimated that there were 120,000 doctors in the United States of whom there were 50,000 who had never subscribed for a medical journal and who had never received one in their office except some free copy of an advertising sheet. There were about the same number who had no books which did not antedate their graduation. To such a challenge, though far too many doctors after graduation lay down their books and cease to study, the medical teachers have made a most splendid response.

There are many factors which are working for the benefit of our postgraduate medical education. The medical societies, the hospitals, the libraries, the journals and the medical extension courses are the chief of these.

I have already mentioned the development of educational opportunities in the New York Academy of Medicine. I wonder if we members of the Massachusetts Medical Society generally realize what a great amount of work is being done there. Massachusetts well might follow certain of the precedents established in New York.

The library of the New York Academy of Medicine contains 140,000 books, medical and surgical meetings are held there each month, a series of lectures is given in November and an annual graduate fortnight offers opportunities to hear lectures and to attend clinics in October. All of the lectures and meetings held at the Academy are open to the profession generally and to medical students. The hospitals of the city contain over 34,000 beds. Over 50,000 patients are cared for each year. Ninety-four hospitals have an aggregate of about 25,000 beds which offer opportunities for postgraduate medical study. The committee of the Academy which has this matter under its supervision, has prepared a booklet which contains a description of the special facilities for postgraduate study which each of the listed hospitals offers and the names of attending medical men and their days.

and hours of attendance. There is a bureau in the Academy which furnishes detailed information in regard to postgraduate medical study in Greater New York, and in other cities of the United States, Canada and Europe. Each evening a daily bulletin is posted in which the operations of sixty-five hospitals to be performed the following day are listed. There is also established a bulletin of non-operative clinics and conferences in sixty-one approved hospitals of the city. A total of 176 clinics are thus listed.

I have spoken of the work in Chicago. The study in that city discloses the fact that it was not practicable for a majority of physicians or even a considerable number to pursue successfully any studies at the schools and at the same time to carry on their practice, one or the other must be sacrificed. There were however many who could devote two or three evenings each week to such study if it were brought within their easy reach. In this city there was developed an extension plan. The choice of subjects can be made by the class, the courses may be made long or short, and the work can be done practically without loss of time and at minimum cost. Evidently there are many methods by which to conduct satisfactory extension teaching.

I have mentioned that the essential vehicles for successful postgraduate teaching are the medical societies, hospitals, libraries, magazines and extension courses, in Massachusetts the most important of these is our State Society for since its very beginning it has been the chief instrument for general spreading of medical knowledge.

There are 7,014 doctors in this state and of these only 5,054 belong to the state medical society. I believe the membership should be increased to include all the licensed practitioners of the Commonwealth. May I call to your mind something said by Dr. Osler in the International Clinics of 1910. "But after all the killing vice of the young doctor is intellectual laziness. He may have worked hard at college, but the years of probation have been his ruin. Without specific subjects upon which to work, he gets the newspaper or novel habit and fritters his energies upon useless literature. Habits of systematic reading are rare and five or ten years from his license as practice begins to grow may find the young doctor knowing less than he did when he started and without fixed educational purposes in life. The man who knows it all and gets nothing from the Society reminds one of that little dried up miniature of human life, the prematurely senile infant, whose tabetic marasmus has added old age to infancy. Why should he go to the Society and hear Dr. Jones on the gastric relations of neurasthenia when he can get it all so much better in the works of Einhorn or Ewald? He is wearying of sec-

ing appendices and there are no more pelvic viscera for demonstration. It is a waste of time he says, and he feels better at home, and perhaps that is the best place for a man who has reached this stage of intellectual stagnation."

This quotation serves to emphasize my conviction that in order for the state society best to fulfill its purpose it must embrace the whole profession.

The present weakness in membership of the Massachusetts Medical Society lends force to the suggestion that the educational work of the society should not be limited solely to its members, for those who are not on the roster need this supplemental education as much if not more than those who belong to the society. That there may be further limitation of the membership in the future is suggested by your constitution which states that graduates from any unrecognized medical college, who wish to become fellows of the society, must be better known than heretofore and must clearly demonstrate their capabilities not only to the examining censors but also to the committee on medical education and medical diplomas before they can be elected. Personally I doubt the wisdom of this action.

You have voted an annual prize of \$50 for the best written and most comprehensive case report submitted by interns holding any of the rotating internships now offered in Massachusetts, and approved by the American Medical Association. Such a prize should do much to stimulate medical writing among younger men and will help to disseminate throughout the state the importance of keeping abreast of medical literature. I am heartily in favor of this development.

Hospitals are almost universally equipped to do postgraduate medical educational work with their clinics of all kinds, their various lectures and medical meetings. The medical profession owes them a great debt of gratitude for this as well as for the constant courtesy and hospitality of their staffs and their willingness to take the time and strength to show visiting doctors whatever they may have of interest for they make one feel that for this work came they into the world. To realize the amount of postgraduate medical teaching that can be done in large institutions I need only to call to your mind the work of the Mayo Clinic in Rochester as one of the best known examples. Nearer at hand the Albany City Hospital is doing an intensive work in teaching postgraduate medicine and in its coöperation with the doctors of the surrounding country. You may know that the hospital is directly associated with the Albany Medical College and in this way differs from many of the ordinary hospitals. Every weekday clinics are given at noon there is this unusual custom added that doctors not on the

staff are urged to bring in their troublesome and trying cases. Family doctors read histories and exhibit their patients and then the staff discusses the matter of diagnosis and treatment. This makes for a much closer feeling between the country doctors and the hospital and is very educational as it frequently brings up the common but difficult questions which general practitioners are called upon to meet. There is also a fund which meets the expenses of visiting doctors of renown who lecture on their special subjects. The names of these men are of national standing and it is a pleasure that such a goodly number have come from the Massachusetts Medical Society.

Another way of raising the standard of medical knowledge is less widely known. In the *New England Journal of Medicine* August 23, 1934, Dr. Channing Frothingham of Boston has written of the "Precedent Book" which has been evolved at the Faulkner Hospital in Brookline. Such a book maintains high hospital standards and prevents the treatment from varying too much with the whims of the individual doctor. There should be less misunderstanding, fewer mistakes made, and better education in therapeutics if such a book were in more general use. Each hospital could modify it to suit its own needs but always it should be revised and kept up to the best known methods.

The medical journals have ever been one of the chief ways of spreading medical knowledge and it is indeed fortunate that there are so many and such splendid ones published in this country. The *New England Journal of Medicine* is especially helpful in its publication every week of the Case Records of the Massachusetts General Hospital as well as for its very splendid and interesting original articles. For these things the magazine is widely known throughout the country.

May I mention the journal club as a means of medical education? No one man can read all the journals or do more than look over a few. Many splendid articles and much knowledge are missed. With a few men meeting together each week, and choosing and reporting on articles from several journals one can draw on a great deal of current literature easily and pleasantly. It is too bad that medical clubs of this character are not organized more widely for there are but few towns that cannot bring together at least three or four doctors who enjoy reading and talking, and the contact alone, with such kindred spirits, is worth while.

Since time immemorial the libraries have been one of the chief sources for storing medical knowledge and extending medical education. They most naturally are found in the large cities as in the case of this Commonwealth. In Massachusetts the largest and best known collection of medical books is in the Boston

Medical Library and, as there are many members of our Society who are neither graduates of Boston Medical Schools nor graduates of Boston Hospitals, may I speak of the functioning of this library, even at the expense of boring many of you? To those who live away from Boston the library will send books upon request. Theoretically the borrower of books should be a member of the library but practically this rule has not been adhered to for many years. The borrower is supposed to ask the librarian of his local public library to arrange for an inter-library loan, the only charge for which is the cost of transportation of books to and from.

There is a feeling that the \$5 out-of-town membership should have a larger number of subscribers, for the wear and tear on books used in this way is considerable and is expensive to the library in the long run. Last year there were more than 1,000 such loans to some 200 borrowers.

The library will also look up subjects for a very reasonable charge, but there again is the feeling that an out-of-town membership of \$5 should be paid, otherwise the library would be subject to a great many inquiries which might be of a trivial nature and not connected with any serious purpose. I hope that a committee of the library will be formed to provide brief criticism of new books issued as a bulletin from the library at stated intervals. This would be sent to out-of-town members and would doubtless take on other functions in the way of keeping the members informed on many subjects of interest to the profession. Such a service would, I think, be welcomed by all doctors as we are at the present at the mercy of optimistic book agents just as we are at the mercy of salesmen of the various drug houses.

Several of the larger cities have libraries connected with their medical societies, or some arrangement for the purchase of medical books is made with the public library; but in the small towns a medical library is a very personal possession and a doctor will collect at much expense a considerable number of books during his lifetime. I believe that a bulletin such as I have outlined could be issued by the Boston Medical Library and would be the greatest boon to such men.

In the small cities and towns which have a hospital, the hospital of course should be the nucleus of a library. The members of the staff should be willing to contribute to some yearly fund for the purpose of buying books and periodicals, and the library of many a doctor should ultimately find its way to the hospital's shelves.

There is a great deal of postgraduate work done in other states and it is interesting to know the many means that have been devised to carry such work along. It would be stupid and a matter of repetition to describe the various experi-

ments that have been conducted, as Dr Parkins of Boston has done this so thoroughly and interestingly. Certain plans, however to my mind contain valuable hints that might well be followed in Massachusetts.

The State of New York has found that the selection of extension teachers is most important, they must be practical, forceful and interesting speakers, and must have had reasonable experience with the diseases which they discuss. They must understand the general physicians' problems. I agree heartily. Many outstanding teachers are not successful in teaching the graduate physician. The talk must not be too long and must present the current conception of the disease under discussion rather than the lecturer's personal opinion. The average physician prefers his graduate medicine in small divided doses which he can assimilate readily and without having to neglect his professional duties during the process of mental digestion.

Ohio has done notable work of late in post graduate education. Dr Clyde L. Cummer, Past President of the Ohio State Medical Association, has developed a series of outline studies on various subjects of especial interest to the general practitioners. The series of these study outlines is being published month by month in the Ohio State Medical Journal. Dr Cummer says that the modern tendency to depend entirely on guest speakers is to be deplored, the attendance stimulated at the start by hearing or seeing well heralded strangers gradually drops off. As a result of placing sole reliance upon outside talent, the members lose the power of expressing themselves in the presence of their colleagues and as one observer said, they sit around with their mouths wide open like young robins waiting to be fed. To us who live in the country the medical extension courses of the Massachusetts Medical Society have been received with the greatest pleasure and interest. These courses bring with them the association of the great hospitals and laboratories, but I for one should like to have more papers read by local men and perhaps discussed by the outside talent.

In the matter of trying to better medical education in this Commonwealth through our own society, we sometimes forget that this society makes its influence felt through a very few devoted men chiefly in and around Boston. On them fall the burden and the labor. Are we willing to stand by and know this work is being done and yet not raise a hand to help? I believe that many are not only willing, but glad to have this work and this worry fall on others' shoulders. This is not fair. It is high time we roused from our slumbers and put our shoulders to the wheel.

There is a woeful lack of responsibility among doctors when it comes to medical meetings. How often do we let other plans interfere with them

a social engagement, or stormy weather will do the trick, the open fire may be pleasant, a book entertaining or it may be we are not especially interested in the subject itself and so we think that we'll let the rest of the men go for this evening although of course we comfort ourselves with the idea that we are among those most interested, and one of the most loyal members.

It seems to me as though the smaller hospitals were not doing their share in regard to medical education. When one thinks of the wealth of material that goes through the various hospitals of moderate size without comment, it seems as though a great teaching opportunity were being neglected. In order to find out exactly what the situation in this respect was, I wrote to forty-four of the hospitals of this state averaging 100 beds and received replies from thirty-four. In no one of these was any definite post graduate work being done. Practically all of them held regular staff meetings and almost all of these were open to the members of the staff only. In answer to the question as to whether there were any regular medical or surgical rounds, nearly half of them did not have such rounds and in those that did not have such rounds and in those that did, a little more than half were open only to the staff. Only three of the thirty-four held regular operating days, practically none had any lectures except those of the medical extension courses, although there were a very few in which the medical society met at the hospital once a month, to which occasionally an outside speaker came. Would it not be a possible thing for these small hospitals to increase their usefulness by opening their staff meetings to the general profession? This would not only increase the general medical education but it would augment the discussion and make the meetings more interesting and also make for a more friendly feeling between all doctors and the hospitals. It seems to me that no hospital can afford to be without regular medical or surgical rounds as in this way one gets varying points of view and different advice as to treatment. Could not these hospitals arrange to have regular operating days at least once a week? Of course many are built without amphitheatres for the general profession, but at the same time the number attending operations would be very few and might learn there by a great deal.

There is a tendency for the journals to be over eager to publish original articles and scientific papers. One wonders if at times some of these are not like the description in Holy Writ, "Like the flower of the field it flourisheth the wind passeth over it and it is gone, and the place thereof shall know it no more." I am afraid that many scientific articles are never read by general practitioners.

It would I believe greatly increase the in

terest in and the value of the *New England Journal* if more articles were written by general practitioners for men in practice. These might not be so scientifically written as many of the articles that we now see but they would be written in an understandable manner, backed by careful investigation and much thought on the author's part and should prove of great worth.

Would it be possible to publish at certain intervals practical articles dealing with the more recent and well tried out treatment of disease? Such articles as these are appearing in the *Journal of the American Medical Association* under the "Treatment of the Cook County Hospital," and, I think, are exceedingly valuable to the general practitioner. Some of us do not see enough cases of certain types to be well versed in the newer methods of therapy and very often it is difficult to find what these should be, even in the recent textbooks, so rapid is the change and so frequently are newer and very well-tried methods of treatment brought in. It is only by the everlasting repetition of reading about treatment that we can learn and remember the newer things.

I feel it is important that the medical extension courses of our Society should succeed, for they have started so well. Their future success depends on many factors. The subjects to be talked about must be of interest, this is taken care of by allowing the members to choose

their own subjects, if they are not well received the various District Societies have only themselves to blame for the topics are varied enough to appeal to everyone. The speakers must talk the same language as the audience. It is waste ful to have a superscientific man talk to a group of general practitioners about something of which they understand one word in three and finally the speaker himself must not only know his subject, but be able to tell about it in a short, concise, simple way. It would be a great addition to the practical value of the courses if it were possible at each exercise to exhibit patients portraying the disease or subjects which were being talked about. It is not uncommon soon to forget what is said and to lose the good of the lecture, the interpretation of vision, when added to that of hearing, makes the memory a much more lasting one.

In conclusion, it seems to me that in Massachusetts and for members of the Massachusetts Medical Society the opportunities for an improved postgraduate medical education are numerous. At present they are not sufficiently used and enjoyed. There should be greater co-operation among all members of the medical profession and all should take better advantage of our chances for improving our medical knowledge. If we would work together the standing of our profession would soon be what it should be, a hiding place from the wind, a covert from the tempest, a river of water in a dry place, and the shadow of a great rock in a weary land.

CHRONIC ARTHRITIS IN HYPERTHYROIDISM AND MYXEDEMA*

BY ROBERT T. MONROE, M.D.†

HYPOTHYROIDISM as a factor in chronic arthritis was stressed in a recent report by F. C. Hall and the writer¹. Of one hundred and fifty cases of hypertrophic arthritis, one-third showed basal metabolic rates below minus 15 and one-half were benefited by taking desiccated thyroid. In an equal group of patients with atrophic arthritis, one-sixth showed similar findings. These experiences have been confirmed in the two succeeding years by continued observation of the same patients and by study of a large number of new ones.

Two questions naturally arose. Is such clinical evidence sufficient proof of true myxedema of some degree, or may it point to a functional and temporary impairment of the thyroid gland, or may it point only to hypometabolism the results being due to psychotherapy? We considered these possibilities in the paper referred to, and intend to report later on studies of the cholesterol content of the blood in patients with

arthritis, since it has been shown that this substance is present in excess in myxedema as contrasted with its normal level in other conditions causing low metabolic rates. The second question was, what is the relative frequency of arthritis in patients with myxedema and in others with hyperthyroidism? The present communication is an attempt to answer this.

ARTHRITIS AND HYPERTHYROIDISM

Over a twenty-year period to December, 1933, there have been 414 patients on the medical wards of the Peter Bent Brigham Hospital with hyperthyroidism. Of these, 374 (90 per cent) had no history of joint pain and physical examination showed no arthropathy. Sixteen had had transient arthralgias or myalgias without objective evidence of joint disease. Fourteen had had attacks of atrophic arthritis and three had had bursitis at one time or another. Only seven (1.6 per cent) were found to have hypertrophic arthritis.

One of the latter group was found to have spurs on the lumbar vertebrae in a plain film of the abdomen taken to demonstrate calculi in

*From the Medical Clinic of the Peter Bent Brigham Hospital, Boston, Massachusetts.

†Monroe, Robert T.—Associate in Medicine, Peter Bent Brigham Hospital. For record and address of author see "This Week's Issue" page 1093.

the gall bladder. Although no stones were seen, no suggestion was offered that the symptoms were arthritic in origin. The diagnosis of hyperthyroidism was questionable in another, the elevated metabolism being ascribed at least in part to the presence of active infection. All of them were considerably older than those without joint pain, their average age being sixty as compared with thirty six, and they all had important vascular disease. Other causes of joint pain were present, such as faulty body mechanics in three and frequent trauma in one. One woman of sixty-eight who had suffered from backache for fifteen years noticed that it disappeared with the onset of symptoms of hyperthyroidism.

It has not been possible to determine the course, relative to arthritis of the patients in this group after the removal of the thyroid gland in whole or part. There were however fifteen patients who entered the hospital for various illnesses who were found to have had subtotal thyroidectomies for hyperthyroidism in the past. Six of them (40 per cent) had no joint symptoms from one to nineteen years after operation, while the remainder reported the onset or exacerbation of hypertrophic arthritis since that time. Symptoms came on in six within a few weeks of the operation, while in the rest they were delayed for one, two, and four teen years. Basal metabolic rate determinations showed no definitely abnormal levels and the arthralgias were usually considered to be psychogenic in origin until it was found that the administration of thyroid gland was of value and that typical physical or Roentgen ray appearances of arthritis supervened. One of the two patients who had arthritis previous to operation was a woman who for twenty years had had attacks of hyperthyroidism between which her joints caused distress, immediately following removal of the thyroid gland there was a rapid progression in the severity of the arthritis. The other was a woman who had been studied in our wards for hypertrophic arthritis and scleroderma, about a year later she developed typical hyperthyroidism and the gland was removed in another hospital, two years later she returned to us, the scleroderma gone but the arthritis worse than ever.

It would be interesting to know what are the chances of arthritis in individuals with adenomatous goiters. Hospital statistics are misleading in this regard, for the diagnostic summaries list only those diseases which appear to be of importance in each instance. I have however, had five patients in the arthritic clinic in whom such glands seemed significant. Four women developed hypertrophic arthritis immediately, one, three and four years after thyroidectomy which was performed for obstruction in one and toxicity in three. Another woman had a very destructive form of atrophic arthritis for seven

years, which resisted all efforts to control or alleviate. When she came to the clinic, her dyspnea attracted my attention to an obstructing goiter, and it seemed possible to attribute some of her troubles to chronic anoxemia. She consented to operation, and promptly thereafter made a remarkable improvement in general health. Her arthritis then became quiescent for the first time, and has continued so for more than a year.

ARTHRITIS AND MYXEDEMA

Over the same twenty year period ninety-eight patients were found to have spontaneous or acquired myxedema. Of these fifty eight gave no indication of arthritis, and five had arthralgias with no record of abnormal appearances in joints. Three had atrophic arthritis with a low grade fever and typically destructive lesions in various joints. All the rest of the group (32.6 per cent) had hypertrophic arthritis. This diagnosis was based in three instances on roentgenological evidence alone, there being no history or physical signs pointing to it. The others offered entirely satisfactory symptomatic and objective data. A dozen stated that rheumatism constituted the major portion of their disability.

The average age of the patients with myxedema was fifteen years in excess of that of the patients with hyperthyroidism. Vascular disease was very common, yet it was about equal in those with and without arthritis. Those with arthritis occasionally had some obvious explanation for their joint pains, as mechanical strains fatigue, alimentary disturbances or menopausal distress, but in the majority such factors were not found. The hypothyroid state alone seemed to be the sole reason for their suffering.

The association of arthritis and myxedema was striking in certain instances. One woman for example developed myxedema and a painful back simultaneously, exhibition of thyroid gland substance relieved both, and she remained well for the eight years in which she was observed. Another woman had a curious cyclic quality to her hypothyroidism for fifteen years. When it was active she suffered from arthritis which in the spontaneous remissions was arrested.

COMMENTS

Table 1 shows the comparative incidence of all types of chronic arthritis in the two groups that were studied. The rarity of the disease in hyperthyroidism is noteworthy. A few had suffered at times from minor pains in muscles and joints which were not distinctive enough to attract attention and which responded readily to measures designed to reduce the activity of the thyroid gland. Those who had had atrophic arthritis were not suffering from it at the time of their treatment for hyperthyroidism. In the active stage this form of arthritis may

paint a picture which is suggestive of an increased metabolic rate. Cachexia, vasomotor instability, and loss of weight are responsible in part, for it has been our experience that the rate is normal at such times, or elevated only to the degree that might be expected with fever. No case was found in which active hypertrophic arthritis coexisted with hyperthyroidism without some other more likely pain-producing factor being present. It is probable that these patients were on the whole too young to warrant an expectation of arthritis in many of them.

TABLE 1

THE INCIDENCE OF ARTHRITIS IN HYPERTHYROIDISM AND MYXEDEMA

	Hyperthyroidism	Myxedema
No joint symptoms or signs	90.3%	59.1%
Arthralgias and myalgias	3.8	5.1
Bursitis	0.7	—
Atrophic Arthritis	3.3	3.0
Hypertrophic Arthritis	1.7	32.6
Total number of cases	414	98

There is, however, a suggestion that, in a few cases at least, the excessive thyroid function was beneficial to the joints.

Duncan² has reported cases of arthritis with hyperthyroidism and intractable pain relieved only by thyroidectomy. I am not aware of having seen such cases, save in the instance referred to, of the woman whose severe arthritis was arrested by the removal of an obstructing goiter.

Arthritis was present in some form and degree in about one-third of the patients with myxedema, and in more than one-half of the small group whose thyroid glands had been removed for hyperactivity. Their average age (fifty-one years) places them at a time when, according to Keefer and Myers³, the majority of all individuals can be shown to have hypertrophic arthritis. There is a growing tendency to regard this form of the disease as a natural part of the process of senescence³. To this belief the writer heartily subscribes. Yet no one is prepared to assert that a majority of the middle-aged or elderly suffer from arthritis. The diagnosis is made only when the patients' symptoms indicate that the "worn-out" joints are important. Such a policy was followed in our cases with the exception of three that have been mentioned. The incidence of clinical joint distress in this group of patients with myxedema seems significantly in excess of that which is met with in their contemporaries with or without other disease.

As a general rule, the more severe the myxedema, the less intense is the suffering from arthritis. A lack of the thyroid hormone decreases the rate of circulation of the blood and slows up all bodily processes. The movements are slow, speech is deliberate, appreciation of

nervous stimuli is dulled almost to a state of lethargy. Mechanical influences are reduced to a minimum and the enforced rest is soothing to the roughened joints. The dangers of prolonged existence in this state are well-recognized in the tendency of these patients to develop early and extensive arteriosclerosis. There is an equal tendency to develop osteophytic outgrowths along the spine and in other weight-bearing joints, so that the appearance of arthritis on physical or roentgenological examination may be surprisingly in excess of the patient's disability. Those who get into trouble are either ones with lesser or varying degrees of myxedema, or are ones whose ambition and energy are preserved and force them to attempt life on a normal scale of activity in spite of their disease.

This is the sort of patient who has been so frequent an applicant to our arthritic clinic. The combination of normal "drive" and subnormal capacity makes for fatigue. His (usually her) haggard, weary expression fits well with his story of economic, physical or spiritual burdens, yet one often feels that the prostration is out of all proportion to that of many others exposed to similar trials. His nervous exhaustion is displayed in his absorption with the picayune details of existence, in his inability to rise above his situation. He works in a bushel basket, he is convinced that there is no way to alter his schedule, and he worries incessantly. His painful joints, his stiffness after rest or on arising in the morning lead him to fear invalidism. He forces himself to keep in motion to prevent ankylosis. As a result of all this he is wide-eyed, tremulous, irritable, constantly in action. He is the last person one would ordinarily think of having hypothyroidism.

The diagnosis is rendered still more difficult by the fact that the first determination of the basal metabolic rate is apt to be normal. Inquiry alone reveals that the patient was far from being relaxed during the test. A haphazard trial of thyroid therapy may only accentuate his nervous state. So unsatisfactory have the routine diagnostic procedures proved in the ambulatory group that we deal with, that it has become my custom to insist on rest for a few weeks before undertaking further investigation. A metabolism test then is more truly basal, and the use of thyroid extract is more likely to be productive of good results.

Speculation as to the nature, causes and incidence of hypothyroidism is beyond the scope of this paper. The frequency of its association with chronic arthritis of the non-infectious, hypertrophic type should be known to all who are called upon to treat that complex malady.

CONCLUSIONS

1. The incidence of atrophic arthritis in myxedema and hyperthyroidism is low, probably no more than would be expected statistically.

- 2 Hypertrophic arthritis occurred in 17 per cent of a series of 414 cases of hyperthyroidism, and in these the relationship seemed to be without significance
- 3 Hypertrophic arthritis occurred in 32.6 per cent of ninety eight patients with myxedema and in a majority of a small group of patients whose thyroid glands had been removed previously for hyperthyroidism. Here

the association seemed intimate and important

REFERENCES

1. Hall, F. C., and Monroe, R. T. Thyroid gland deficiency in chronic arthritis. *J. Lab. & Clin. Med.* 18: 439 (Feb.) 1932, 33
2. Duncan, W. B.: Relationship of thyroid disease to chronic non-infective arthritis. *J. A. M. A.* 99:1239 (Oct. 8) 1932
3. Keeler, C. B., and Myer, W. K.: The incidence and pathogenesis of degenerative arthritis. *J. A. M. A.* 105: 511 (March 17) 1934
4. Cecil, R. L.: The medical treatment of chronic arthritis. *J. A. M. A.* 103: 1832 (Nov. 4) 1934

AURICULAR FIBRILLATION AND AURICULAR FLUTTER IN THE COURSE OF SUBACUTE BACTERIAL ENDOCARDITIS*

Report of a Series of Cases

BY MAURICE S. SEGAL, M.D.†

THROUGH the studies of Lubman and his school^{1,2}, Blumer³, Thayer⁴, Horder⁵ and Levine^{6,7}, it has been generally accepted that the occurrence of cardiac irregularities, particularly auricular fibrillation is unusual in the course of active subacute bacterial endocarditis. However a few individual cases of these irregularities have been studied throughout the course of illness and have been reported together with autopsy protocols.

Sprague⁸ has described a twenty four year old male with preexisting auricular fibrillation abolished by quinine sulphate. The fibrillation returned at the onset of the subacute bacterial endocarditis and persisted up to the time of death, six months later. The patient died of congestive heart failure. At autopsy the mitral valve showed evidence of regurgitation and measured 15 cm. in diameter.

De la Chapelle and Graef⁹, have reported two unusual cases of subacute bacterial endocarditis with electrocardiographic studies. The first case demonstrated changes in conduction time and will not be discussed here. The second case was similar to one which is to be given in the present report. The patient was a thirty three year old male. The cardiac rhythm was normal except for premature beats. His clinical course was that of a typical subacute bacterial endocarditis with streptococcus viridans blood cultures. Serial electrocardiograms, taken over a period of eleven weeks, revealed prolongation of the P-R interval (22 to 36 seconds) until three weeks before death. Intraventricular block was present throughout and the QRS complex measured 10 to 12 seconds. Auricular premature beats were recorded four times and a shifting pacemaker once. Auricular flutter with varying block was recorded once but did not reappear. The patient died approximately ten weeks later. Tachycardia of unexplained origin

(probably sinus) occurred during the last two days of life. No mention is made of digitalis therapy. At autopsy, vegetations were found on the mitral and aortic valves the chordae tendineae and the endocardium of the left auricle. The mitral cusps were but moderately thickened and the orifice was not stenosed. The chordae tendineae were hypertrophied and shortened. No evidence of Aschoff granulomata was found.

So far as is known this is the first recorded case of auricular flutter in the course of active subacute bacterial endocarditis. One case is mentioned briefly in the comprehensive review by Blumer³. Rothschild, Sacks and Lubman² noted the occurrence of auricular flutter in a "bacteria free" case. Their observations show that the incidence of irregularities in the "bacteria free" group is about the same as that of rheumatic heart disease. McMillan and Bellet¹⁰, reviewing sixty five cases of auricular flutter failed to reveal any with underlying subacute bacterial endocarditis.

In a later paper, de la Chapelle and Graef⁹ reported the case of a twenty five year old female with rheumatic endocarditis and with electrocardiographic evidence of auricular fibrillation for twenty-one months prior to death. The terminal subacute bacterial endocarditis infection was believed to have occurred nine months before death. During this period all electrocardiograms revealed auricular fibrillation. Autopsy revealed subacute bacterial endocarditis of the mitral valve and the aortic valves and chronic valvulitis of the mitral valve with stenosis and regurgitation. The mitral valve was but moderately stenotic and measured 10 cm. in circumference at its base. No Aschoff bodies were found in the microscopic sections.

The occurrence of auricular flutter and auricular fibrillation in the course of active subacute bacterial endocarditis was recently observed at the Boston City Hospital. Since 1900*, 192

*From the First and Third Medical Services—(Tufts) Boston City Hospital, and the Department of Medicine Tufts College Medical School Boston, Mass.

†Segal, Maurice S.—Resident Phys.ian, First and Third Services Boston City Hospital 1933-35. For record and address of author see "This Week's Issue" page 1931.

The rhythmic abnormalities in the course of subacute bacterial endocarditis compared with those occurring in the course of rheumatic heart disease. (Submitted for publication.)

paint a picture which is suggestive of an increased metabolic rate. Cachexia, vasomotor instability, and loss of weight are responsible in part, for it has been our experience that the rate is normal at such times, or elevated only to the degree that might be expected with fever. No case was found in which active hypertrophic arthritis coexisted with hyperthyroidism without some other more likely pain-producing factor being present. It is probable that these patients were on the whole too young to warrant an expectation of arthritis in many of them.

TABLE 1

THE INCIDENCE OF ARTHRITIS IN HYPERTHYROIDISM AND MYXEDEMA

	Hyperthyroidism	Myxedema
No joint symptoms or signs	90.3%	59.1%
Arthralgias and myalgias	3.8	5.1
Bursitis	0.7	—
Atrophic Arthritis	3.3	3.0
Hypertrophic Arthritis	1.7	32.6
Total number of cases	414	98

There is, however, a suggestion that, in a few cases at least, the excessive thyroid function was beneficial to the joints.

Duncan² has reported cases of arthritis with hyperthyroidism and intractable pain relieved only by thyroidectomy. I am not aware of having seen such cases save in the instance referred to, of the woman whose severe arthritis was arrested by the removal of an obstructing goiter.

Arthritis was present in some form and degree in about one-third of the patients with myxedema, and in more than one-half of the small group whose thyroid glands had been removed for hyperactivity. Their average age (fifty one years) places them at a time when, according to Keefer and Myers³, the majority of all individuals can be shown to have hypertrophic arthritis. There is a growing tendency to regard this form of the disease as a natural part of the process of senescence³. To this belief the writer heartily subscribes. Yet no one is prepared to assert that a majority of the middle-aged or elderly suffer from arthritis. The diagnosis is made only when the patients' symptoms indicate that the "worn-out" joints are important. Such a policy was followed in our cases with the exception of three that have been mentioned. The incidence of clinical joint distress in this group of patients with myxedema seems significantly in excess of that which is met with in their contemporaries with or without other disease.

As a general rule, the more severe the myxedema, the less intense is the suffering from arthritis. A lack of the thyroid hormone decreases the rate of circulation of the blood and slows up all bodily processes. The movements are slow, speech is deliberate, appreciation of

nervous stimuli is dulled almost to a state of lethargy. Mechanical influences are reduced to a minimum and the enforced rest is soothing to the roughened joints. The dangers of prolonged existence in this state are well-recognized in the tendency of these patients to develop early and extensive arteriosclerosis. There is an equal tendency to develop osteophytic outgrowths along the spine and in other weight-bearing joints, so that the appearance of arthritis on physical or roentgenological examination may be surprisingly in excess of the patient's disability. Those who get into trouble are either ones with lesser or varying degrees of myxedema, or are ones whose ambition and energy are preserved and force them to attempt life on a normal scale of activity in spite of their disease.

This is the sort of patient who has been so frequent an applicant to our arthritic clinic. The combination of normal "drive" and subnormal capacity makes for fatigue. His (usually her) haggard, weary expression fits well with his story of economic, physical or spiritual burdens, yet one often feels that the prostration is out of all proportion to that of many others exposed to similar trials. His nervous exhaustion is displayed in his absorption with the pecuniary details of existence, in his inability to rise above his situation. He works in a bushel basket, he is convinced that there is no way to alter his schedule, and he worries incessantly. His painful joints, his stiffness after rest or on arising in the morning lead him to fear invalidism. He forces himself to keep in motion to prevent ankylosis. As a result of all this he is wide-eyed, tremulous, irritable, constantly in action. He is the last person one would ordinarily think of having hypothyroidism.

The diagnosis is rendered still more difficult by the fact that the first determination of the basal metabolic rate is apt to be normal. Inquiry alone reveals that the patient was far from being relaxed during the test. A haphazard trial of thyroid therapy may only accentuate his nervous state. So unsatisfactory have the routine diagnostic procedures proved in the ambulatory group that we deal with, that it has become my custom to insist on rest for a few weeks before undertaking further investigation. A metabolism test then is more truly basal, and the use of thyroid extract is more likely to be productive of good results.

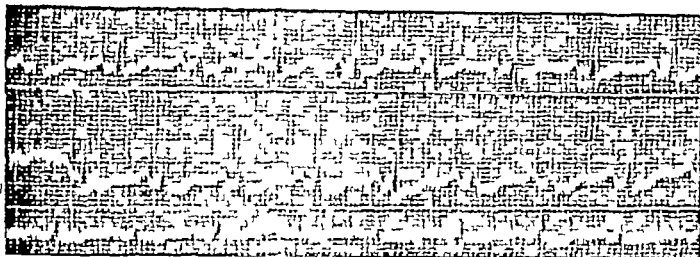
Speculation as to the nature, causes and incidence of hypothyroidism is beyond the scope of this paper. The frequency of its association with chronic arthritis of the non-infectious, hypertrophic type should be known to all who are called upon to treat that complex malady.

CONCLUSIONS

1. The incidence of atrophic arthritis in myxedema and hyperthyroidism is low, probably no more than would be expected statistically.

FIG. 2a.

Electrocardiograms in the patient (I—E. F.) who developed auricular flutter in the course of subacute bacterial endocarditis.



9/2/33

Taken Two months before occurrence of auricular flutter. Patient was getting small amounts of digitalis.

Interpretation

Normal sinus rhythm. Rate 100 PR interval 14

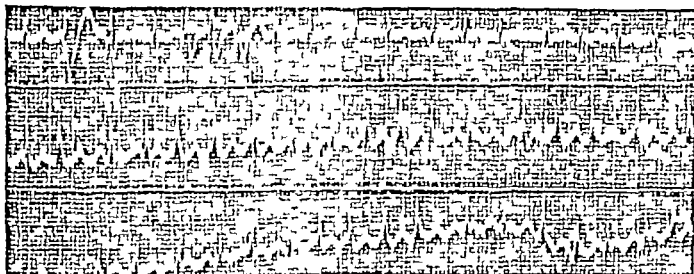
QRS interval 07 with slightly low origin of complexes

T 1 T 2, diphasic with low origin.

T 3 in averted with low origin.

T waves consistent with digitalis effect.

FIG. 2b



11/2/34

Taken Approximately 8 hours after onset of auricular flutter. Patient had not received any digitalis for about 1 month.

Interpretation

Auricular flutter. Auricular rate 300 Ventricular rate 180

Aberrant ventricular beats lead I.

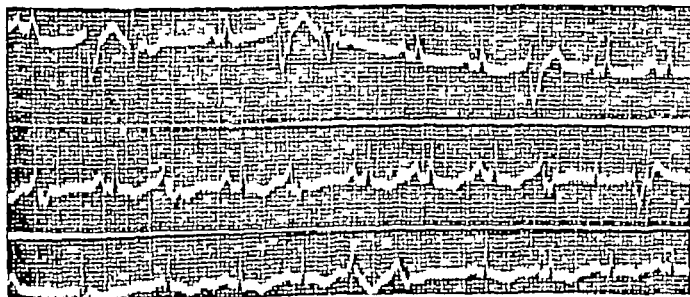


FIG. 2c.

E. F. 11/3/34

Taken 1:10 P.M. approximately 8 hours after change of auricular flutter to auricular fibrillation. The latter was observed clinically. Patient was receiving digitalis.

Interpretation

Electro-auricular tachycardia. Rate 182, PR 13 sec.

QRS 01 seconds T 1 inverted, T 2 T 3

Inverted with upward convexity of ST

Ventricular premature beats from varying foci.

N normal axis.

The rhythm remained essentially the same except for fewer extra systoles until death 13 days after the observed flutter.

lateral slight hydrothorax, chronic passive congestion of the liver and multiple infarcts of spleen and kidneys were found. The heart weighed 450 grams. The chordae tendineae were thickened and shortened and the endocardium of the left auricle had small white headed rheumatic nodules. The mitral orifice was covered with yellowish red fungating vegetations which completely covered both leaflets of the mitral valve. There were several similar vegetations, measuring 2 mm in diameter, on the endocardium of the left auricle immediately above the valve.

Similar vegetations were found on the ventricular surface of all the three aortic cusps. The largest, measuring 1.5 cm in diameter, was on the right posterior cusp. These did not appear to interfere with the function of the aortic valve. All the vegetations were friable but adherent to the valves. The tricuspid and pulmonic valves were not involved. The circumference of the valves was as follows: tricuspid, 12.5 cm, pulmonary, 7.2 cm, mitral, 9.5 cm and aortic, 6.6 cm. The left ventricular wall measured 1.5 cm and the right 5 cm. There were no Aschoff bodies seen in the microscopic sections.

This case is described as an example of auricular flutter and fibrillation occurring in the course of active subacute bacterial endocarditis which at autopsy, revealed but moderate mitral stenosis. The photograph of the heart at autopsy and representative serial electrocardiograms are included (Figures 1, 2, and 3).

(CASE No 2—S C) The following is a case of subacute bacterial endocarditis which developed a partial heart block. Later auricular fibrillation occurred and persisted for five weeks until death.

The patient, a thirty-five year white male, first entered the out patient department because of an indolent varicose vein ulcer. A cardiac disorder was recognized and he was advised to enter the hospital.

On admission, he gave a history of sore throat for the past month, and cough and swollen legs for about one year. He stated that he had attacks of sore throat "yearly". At the age of three he was very ill. The nature of this disease was unknown. Since childhood he had been aware of "extraordinary forceful heart action".

Physical Examination revealed a well nourished white male. The skin was warm and moist. Petechiae were observed in both conjunctivae. The heart was generally enlarged. The blood pressure was 140/40. The rhythm was regular except for many extrasystoles. There was a loud systolic murmur all over the precordium with a diastolic murmur in the aortic area and along the left border of the sternum. The remainder of the examination was essentially negative except for a small varicose ulcer on the lower third of the left leg.

During a four months' hospital stay his temperature was septic, and the pulse rate ranged from 80-100. He received no digitalis until the day before death. During the first week extrasystoles were the only irregularity noted. On the eighth day, frequent dropped beats at the pulse were noted. On the ninth day an electrocardiogram revealed sinoauricular tachycardia, rate 115, a P-R interval of 28 to 44 seconds, QRS interval 0.8 seconds T1 and T2 up and T3 flat, and left ventricular predominance. The interpretation was that of a partial heart block with frequent dropped beats. About two months later an electrocardiogram revealed auricular fibrillation with a ventricular rate of 80 and no other abnormalities. It was not mentioned whether this irregularity was observed clinically before being dem-

onstrated by the electrocardiogram. From this time on, however, the auricular fibrillation persisted until death ensued five weeks later. Another electrocardiogram on the day before death revealed auricular fibrillation and many premature beats. During the course of illness a moderate leucocytosis and progressive hypochromic microcytic anemia were present. The blood cultures were positive for the streptococcus viridans on four occasions. It was believed that death was due to a terminal bronchopneumonia and circulatory failure.

At autopsy subacute bacterial vegetations involving the mitral and aortic valves, cardiac hypertrophy and dilation, aortic insufficiency, bronchopneumonia, bilateral hydrothorax, splenic infarction and cloudy swelling of the kidneys and liver were found. The heart was markedly enlarged and dilated and weighed 910 grams. There were several fresh vegetations on the leaflets of the mitral valve extending down the chordae tendineae and upward involving the aortic valve. The aortic valve was markedly thickened by the vegetations and two of the cusps were fused together. The right atrium and ventricle were dilated. The pulmonary and tricuspid valves were negative. The valves measured in circumference, tricuspid, 13.3 cm, pulmonary, 9.4 cm, mitral, 12.1 cm and the aortic, 7.9 cm. The left ventricular wall measured 1.8 cm and the right 3 cm. No Aschoff bodies were found in the microscopic sections.

(CASE No 3—J D) The following case was the only one with established auricular fibrillation and rheumatic heart disease which subsequently developed subacute bacterial endocarditis.

The patient, a thirty year old male, had entered twice previously within a period of six months. On each of these occasions the diagnosis was rheumatic heart disease with mitral stenosis and regurgitation, auricular fibrillation, cerebral and mesenteric emboli. Many electrocardiograms confirmed the clinical observations of auricular fibrillation. On a third admission, the course was more hectic than before and the patient appeared much worse. Auricular fibrillation was again observed and recorded by the electrocardiogram. The clinical impression was that of subacute bacterial endocarditis and this was confirmed by a streptococcus viridans blood culture. Although very ill, the patient insisted on going home against advice and could not be studied through to the termination of his illness.

(CASE No 4—H S) There was only one other case of auricular flutter which occurred in the course of subacute bacterial endocarditis.

The patient, a thirty-nine year old female, entered with a diagnosis of rheumatic heart disease. The rhythm was normal on admission. There appeared to be involvement of the mitral valve with a question of fresh pulmonic involvement in the course of the illness. The course was that of a hectic septicemia. A blood culture was positive for streptococcus viridans. On the second day, an auricular flutter with varying 3 to 1 and 2 to 1 blocks was recorded on an electrocardiogram. This persisted and was recorded on serial electrocardiograms to time of discharge two weeks later. Unfortunately, the patient left the hospital against advice at this time and could not be followed.

It is of interest that this patient and the one before were aware of "heart disease" practically all their lives.

(CASE No 5—A N) The following is a case of auricular fibrillation occurring in the course of active subacute bacterial endocarditis.

The patient, a forty five year old female, was studied for six weeks. There was past history of

rheumatic fever Physical examination revealed a rheumatic heart with mitral stenosis and regurgitation. The clinical course was that of a typical subacute bacterial endocarditis with a positive streptococcus viridans blood culture. The cardiac rhythm was observed to be normal on admission. During the last three weeks the rhythm was observed to be that of auricular fibrillation. No electrocardiographic studies were obtained. Death occurred at the end of the sixth week and was due to the overwhelming septicemia and a cerebral embolism. No autopsy was performed.

(Case No 6—A H) There was but one case of auricular fibrillation in the course of acute bacterial endocarditis and this occurred as a terminal event.

The patient, a thirty year old female entered with a story of cough dyspnea and anorexia of eight months duration. For the past eight years she had complained of many attacks of sore throat and polyarticular joint pains. The physical examination revealed an acutely ill woman with double murmurs at the mitral area. The rhythm was totally irregular with dropped beats at the pulse. The outstanding clinical features were a hectic septicemia, painful joints, purpura and a terminal meningitis. A blood culture was negative. She died four days after admission. At autopsy the outstanding findings were malignant endocarditis with acute vegetations on the left auricular wall and mitral valve and an acute purulent meningitis. The mitral valve was not stenosed and measured 10.2 cm. Cultures from the meninges yielded a gram negative bacillus and from the vegetations a gram positive coccus. No Aschoff bodies were found in the microscopic sections.

DISCUSSION

The infrequency of auricular fibrillation either preceding or in the course of subacute bacterial endocarditis, has been discussed by many observers. The appearance of auricular flutter in the course of this disease is even more unusual. The case mentioned in Blumer's² report and the one described by de la Chapelle and Graef¹² were the only ones found in the literature. A review was made of 1149 cases⁹ of active subacute bacterial endocarditis in which mention was made of cardiac irregularities. The present series was included in this review. Of these only four were cases of auricular flutter, an incidence of 35 per cent, and twenty four were cases of auricular fibrillation an incidence of 2.07 per cent.

There have been varying opinions concerning the integrity of the myocardium in the course of subacute bacterial endocarditis. Blumer and others have stated that the myocardium is only rarely involved. Horder and others have called the disease an "endocarditis vera" in contrast to rheumatic heart disease where the endocardium, myocardium and pericardium are more frequently involved.

The association of auricular fibrillation with a failing myocardium has long been observed. Many investigators have stressed the striking maintenance of the integrity of the myocardium

in subacute bacterial endocarditis and have thus attempted to explain the infrequency of auricular fibrillation in this disease. On the other hand, Clawson¹³, Libman¹⁴ and Saphir¹⁵ have emphasized the frequent occurrence of myocardial lesions in subacute bacterial endocarditis. These authors have also found coexisting Aschoff bodies. No Aschoff bodies were found in the microscopic sections of the cases in this study. Furthermore an average of eleven years had passed between the initial rheumatic infection and the terminal subacute bacterial endocarditis.

In a study of clinical and morphological data, Davis and Weiss¹ found that in rheumatic heart disease there were more cases of mildly stenosed than of severely stenosed mitral valves. In subacute bacterial endocarditis lesser grades were found more often because of the infrequency of the severer grades of stenosis in rheumatic hearts. Auricular fibrillation was found to be particularly associated with the advanced type of mitral stenosis and dilated auricles. They concluded that this relative infrequency of severe mitral stenosis, decompensation, and auricular fibrillation in subacute bacterial endocarditis was purely an accidental affair based largely on the fact that there were more rheumatic cases with regular rhythm than with auricular fibrillation.

In a recent study de la Chapelle, Graef, and Rottino¹ concluded that auricular fibrillation did not depend upon the degree of mitral stenosis per se, but simply required some degree of stenosis. That their results suggest this conclusion cannot be denied. This view would appear to be contrary to the oft-repeated dictum that auricular fibrillation is more commonly associated with the severer grades of mitral stenosis. If there were more cases dying of congestive failure in their group with moderate mitral stenosis than in their group with severe mitral stenosis the incidence of auricular fibrillation would be higher no doubt in the former group. Thus, it would appear to be difficult to draw any conclusions from morphological data without considering the functional integrity of the myocardium just before death.

In the present study from both clinical and autopsy evidence it was observed that when auricular fibrillation occurred in subacute bacterial endocarditis the mitral valve was involved alone or in combination with the aortic valve. In no case at autopsy was there evidence of severe mitral stenosis. These observations occurred in the case reports as well. It will be recalled that the case of preexisting auricular fibrillation described by Sprague, revealed mitral regurgitation at autopsy and the mitral orifice measured 15 cm in circumference. The patient died of congestive heart failure. The case of preexisting auricular fibrillation, described by de la Chapelle and Graef revealed at

The rhythmic abnormalities in the course of subacute bacterial endocarditis compared with those occurring in the course of rheumatic heart disease. (Submitted for publication.)

autopsy but moderate mitral stenosis. The mitral orifice measured 10 cm in circumference. The aortic valve was also involved. Their case of auricular flutter also showed both mitral and aortic involvement at autopsy. The orifice of the mitral valve was not stenosed. In the present report the case of auricular flutter and fibrillation had both mitral and aortic involvement at autopsy. There was evidence of auricular regurgitation, but no mitral stenosis. The mitral valve measured 12.1 cm in circumference. The patient died of terminal circulatory failure. The author's case of terminal fibrillation in the course of acute bacterial endocarditis revealed only mitral involvement at autopsy. The mitral valve was not stenosed and measured 10.2 cm.

From the above, it will be seen that mitral stenosis was either absent or present in mild degree only. Furthermore, over fifty per cent of these reported cases died of myocardial insufficiency. Inasmuch as it is widely accepted that auricular fibrillation is more commonly associated with more severely stenosed mitral valves, these findings at first may appear to be out of keeping with this teaching. However, we believe that the integrity of the myocardium as a whole is responsible for the occurrence of auricular fibrillation in subacute bacterial endocarditis rather than any particular grade of mitral stenosis per se.

SUMMARY

1. A review of 192 cases of bacterial endocarditis revealed two cases of auricular flutter and three cases of auricular fibrillation in the course of subacute bacterial endocarditis. One case of auricular fibrillation appeared in the course of acute bacterial endocarditis. The case reports with autopsy protocols are included. Additional case reports from the literature are included.

2. The cases of auricular fibrillation or flutter occurring in the course of active subacute bacterial endocarditis all showed evidence of mitral

valve involvement alone or in combination with the aortic valve.

3. In the cases of fibrillation or flutter, when the mitral valve was involved by the vegetations, there was found either a normal mitral orifice, mitral regurgitation, or moderate mitral stenosis. No cases of severe mitral stenosis were found. The circumferences of the mitral orifices ranged from 9.5 cm through 15 cm.

4. Terminal circulatory failure was found in fifty per cent of the cases of auricular fibrillation or flutter in the course of subacute bacterial endocarditis.

5. The rare incidence of auricular fibrillation in the course of active subacute bacterial endocarditis cannot be attributed entirely to the rare incidence of severe mitral stenosis in this disease.

6. The integrity of the myocardium and the underlying physiological and biological state would appear to be more closely related to the pathogenesis of auricular fibrillation than the grade of mitral stenosis per se.

REFERENCES

1. Libman E. *Med Clin N America* 2: 117, 1918.
2. Rothschild M. A., Sacks B., and Libman E. *Am Heart J* 2: 356, 1927.
3. Blumer G. *Medicine* 2: 105, 1923.
4. Thayer W. S. *J H H Reps* 22: 1, 1926.
5. Thayer W. S. *Edinburgh M J* 38: 237, 1931.
6. Horder T. *Lancet* 1: 685, 745, 850, 1926.
7. Horder T. *Libman Anniv* 2: 569, 1932.
8. Levine S. A. *New Eng J Med* 193: 885, 1928.
9. Fulton M. N. and Levine S. A. *Am J Med Sc* 182: 60, 1932.
10. Lave C. L. and Levine S. A. *Am J Med Sc* 186: 833, 1933.
11. Sprague H. B. *J A M A* 94: 1037, 1930.
12. de la Chapelle C. E. and Graef I. *Med Clin N America* 14: 1835, 1931.
13. McMillan T. M. and Bellet S. *Am J Med Sc* 184: 23, 1932.
14. de la Chapelle C. E. and Graef I. *Am Heart J* 5: 96, 1932.
15. Clawson E. J. *Arch Int Med* 33: 157, 1924.
16. Clawson E. J. *Am Heart J* 4: 1, 1928.
17. Libman E. *J A M A* 80: 813, 1923.
18. Libman E. *Practical Lectures*. New York: Paul B Hoeber Inc. P. 246, 1923.
19. Libman E. *Am Heart J* 1: 25, 1925.
20. Saphir, O. *Am J Path* 11: 143, 1935.
21. Davis D. and Weiss S. *New Eng J Med* 208: 619, 1933.
22. de la Chapelle C. E., Graef I. and Rottino A. *Am Heart J* 10: 62, 1934.

THE TILTED PELVIS AND SCOLIOSIS TREATMENT PREVENTIVE AND OPERATIVE*

BY SETH M. FITCHET, M.D.†

IN a previous communication, "Flexion Deformity of the Hip and the Lateral Intermuscular Septum", the rôle of the iliotibial band and its chief insertion, the lateral intermuscular septum, was emphasized as the deforming factor in so-called "flexion deformity of the hip", when this flexion was a sequel to poliomyelitis. It was pointed out that this "hip flexion" was in reality an abduction and that by section of the iliotibial band and its insertion, the inter-

muscular septum the deformity of abduction was readily corrected. Attention was called to the well-known fact that the tensor fasciae femoris and a large portion of the gluteus maximus muscle insert into the fascia lata and continue down the thigh jointly as the iliotibial band inserting chiefly into the outer tuberosity of the tibia. These are the structures most involved in abduction deformity.

The fascia lata is attached to the femur throughout its length by means of intermuscular septa which arise from it. The lateral intermus-

*Accepted for publication December 26, 1934.

†Fitchet, Seth M.—Visiting Surgeon, Orthopedic Department, Children's Hospital. For record and address of author see *This Week's Issue*, page 1098.

SURGICAL PROBLEMS OF FUNGUS ORIGIN*

Report of a Case of Sporotrichosis in Massachusetts

BY J. G. DOWNING, M.D.†

MY purpose in presenting the following problems is to stress the need of examination of certain local and general diseases for fungi.

When one can address practically any audience (male or female) and feel certain that at least twenty five per cent of those present are suffering from so-called "Athlete's Foot", no argument is needed to convince one that it is an ever present disease despite all efforts which are now being used for its prevention.

Gilman recently examined five hundred (500) students and found that sixty per cent had a fungous infection of the skin, students at other institutions have shown as high as seventy per cent among the males and thirty per cent among females. Although the majority of these patients have a mild fungous infection which is not disabling still there is the ever present danger of an acute flare-up which might be serious.

Homans¹ stated that, "leaving out of consideration the possibility that the etiologic fungus may in time acquire such virulence as to become a cause of internal disorders it may confidently be asserted that streptococcal infections, entering by way of the local lesion are now so common that any lymphangitis or cellulitis of the leg not traceable to infection of a hair follicle or some trivial wound is almost certain to be due to this cause". He cites several cases—in one, the chain of events was the following: Epi-dermophytosis, secondary streptococcal infection, acute lymphangitis, cellulitis, secondary abscess of the inguinal region and popliteal spaces and deep abscesses of the thigh. Fortunately these cases are not of frequent occurrence, however, recurrent attacks of a red, encircling band embracing the entire lower leg resembling a mild cellulitis, should have a thorough examination to rule out the possibility of a fungous infection of the feet e.g., on October 16, 1934 D. N. aged fifty, a male garment worker (work consisted of running a sewing machine by foot power) was examined. Two months previously he bumped his left lower leg on the machine while at work and about three weeks later he noticed that his leg was red, tender, and painful. At that time he was treated for a localized phlebitis of the lower leg, this eruption persisted and later became vesicular—when seen, his left lower leg was markedly edematous, red, and studded with large hemorrhagic bullae. Examination of the rest of his skin was negative except for the left foot—between the first and

second toes there was marked maceration with a deep fissure of the interdigital skin, the interdigital skin of the other toes also showed a boiled out, macerated condition. In this case the sequence was, a fungous infection of the skin, cellulitis, and a secondary dermatitis due to local applications.

J. M., a policeman, suffered from attacks of redness of his right leg—these attacks were accompanied by chills and fever, he was examined and showed a marked lymphangitis of the upper leg with femoral adenitis and a broad red band encircling the entire lower leg which on palpation presented a hot, tense, tender surface, examination of toes showed a marked fungous infection. On relieving the condition between his toes the man had no more attacks of his leg condition. An acute exacerbation of a superficial mycotic dermatitis of the feet is occasionally accompanied by inguinal adenopathy with out showing any visible lymphangitis. The question in these cases is whether this inguinal adenopathy is pyogenic, mycotoxic or actually mycotic. However, Cleveland White² reported such a case in which there were markedly enlarged inguinal glands, no lymphangitis, no temperature but the patient showed a macerated, sodden area between all the toes with typical sharply defined lesions on the dorsum of the foot and internal surface of the ankle. He took scrapings from between the toes punctured a gland, and incised one gland from the scrapings, puncture and maceration of the excised gland, he grew a culture similar in microscopic and cultural aspects which was a trichophyton probably of the gypseum type. Furthermore, a positive trichophyton granulosum culture was secured by Sutter³ from a retro-auricular node and the original focus, the scalp. In patients with lowered resistance or with a very virulent fungous infection the organism may extend from the lymph system into the blood stream—this fact has been proved by Peck by positive blood culture.⁴

Paronychias are painful and disabling affections and occasionally one finds one which despite proper surgical treatment continues to relapse. In this type, it is well to search for a yeast like organism⁵ or a Trichophyton for these may be causes of persistent paronychia. Recently two cases of yeast like infection of the fingernails have been seen in bar tenders. When an abscess is opened it is the custom of most surgeons to culture the purulent material on plain agar if a tube of Sabouraud's culture media were also inoculated more mycotic infections would be recognized, as for instance—

*Read before the American College of Surgeons at the Boston City Hospital, October 10, 1934.

†Downing, J. G.—Assistant Professor of Dermatology Tufts College Medical School. For record and address of author see "This Week" Issue, page 1091.

hydroxide. Incision of this tumor gives little or no pus and may produce generalized dissemination of the fungi.

Tinea barbae has been confused with furunculosis.

One group of cases where microscopic examination is very simple and of immense value is the group of pulmonary abscesses. Smith¹¹ in an excellent review of this condition in children, stated that there are four possible routes by which the infecting material may reach the lungs—it may be introduced directly by a penetrating wound, it may drain in through the lymphatics, it may enter the blood stream as an embolus, or it may be aspirated. These pulmonary lesions are either bacterial, fusospirochetal, or fungous, the differentiation here is of prime importance for the treatment resulting from a study of the organisms may be serum if bacterial, arsenic if fusospirochetal, and iodide if fungous. In the classification of fungous diseases of the lungs, Smith listed eight yeast like fungi, three mold like fungi, and two higher bacterial forms. In this group of cases the possibility of aspiration is the most likely for it is very easy to inhale these organisms as has been shown in laboratory workers.

Conclusions 1 Another case of *Sporotrichosis* in Massachusetts is reported.

2 Infections from fungi may be more important than simply a superficial dermatitis, they may be the focus for serious internal diseases.

REFERENCES

1. Homans, John. Epidermophytosis (athlete's foot) a cause of serious streptococcal infections. *New Eng J Med* 86: 1028 (May 20) 1922.
2. White, Cleveland: Mycotic inguinal lymphadenitis associated with superficial fungus dermatitis of the feet. *Arch Dermat. & Syph* 18: 71 (August) 1922.
3. Sutter Ernst: Zur Kenntnis der Pathogenese der Trichophytide (Skarlatiniforme, Lichenoides und Nodose Ekan theme). *Arch. f. Dermat. u. Syph.* 127: 735 1916-20.
4. Peck S M: Epidermophytosis of the feet and epidermophytids of the hands. *Arch. Dermat. & Syph* 21: 40 (July) 1920.
5. MacCormack, H.: Paronychia due to *Aspergillus nidulans*. *Brit. J. Dermat. & Syph* 29: 224 (October) 1927.
6. Davis, D J: Chromomycosis in cultures of *Sporotricha*. *J. Infect. Dis.* 17: 174 1915.
7. Hecht L. and Perkins C. F.: Refractory subcutaneous abscesses caused by *Sporotricha schenckii*. A new pathogenic fungus. *J. Exper. Med.* 5: 77 1900.
8. Kovnat, M., and Mezel C.: Streptotrichosis (report of a case). *J. A. M. A.* 89: 521 (Dec. 10) 1922.
9. Stober A M. Systemic blastomycosis (A report of its pathological and clinical features). *Arch. Int. Med.* 13: 509 (April) 1914.
10. Downing, J. G. Blastomycosis (report of a case). *New Eng J. Med.* 204: 1 69 (June 11) 1931.
11. Smith, David T.: The diagnosis and treatment of pulmonary abscess in children. *J. A. M. A.* 103: 971 (Sept. 29) 1934.

A STUDY OF HEART DISEASE AMONG VETERANS*

V Syphilitic Heart Disease

BY PHILIP B. MATZ, M.D.†

THE incidence of cardiovascular syphilis varies with race, geographical location of the patients, age etc. Thus Lamb and Turner found syphilitic aortitis in 107 of a series of 2081 autopsies at the Presbyterian Hospital, New York City, an incidence of 5.1 per cent. In a series of 4577 unselected autopsies in Minnesota, Clawson and Bell in 1927 found syphilitic aortitis in 26 per cent of the cases. Among 611 autopsies in patients of the Veterans' Administration, who had been under hospitalization for heart disease, sixty five were found to have had syphilitic aortitis, an incidence of 10.6 per cent.

Due to an improved therapeutic regimen for syphilis it is found that there has been a decrease in the incidence of cardiovascular syphilis in recent years. At the Massachusetts General Hospital, in 1914, Cabot reported 12 per cent of a group of 600 cardiac cases as due primarily to syphilis, in 1928 at the same clinic, White and Jones reported 5 per cent of a group of 880 cardiac cases as due primarily or secondarily to syphilis.

SYPHILITIC AORTITIS

Syphilitic heart disease means essentially syphilitic aortitis with its complications, such

as aortic insufficiency, aortic aneurysm, or syphilitic coronary disease. In about 20 per cent of cases syphilitic aortitis is not recognized clinically but is found at autopsy. The period in which the diagnosis of syphilitic aortitis is made with difficulty is known as the latent period. This varies from ten to twenty years, it is as a rule symptomless. When the condition becomes manifest it has reached an advanced stage of the disease. Two types of aortitis are usually seen viz. with and without dilatation.

The most frequent complication of syphilitic aortitis is aortic insufficiency. This heart complication is a comparatively late sign of syphilitic heart disease. In a large number of cases of syphilitic aortitis reported by different observers aortic insufficiency was found in 30 per cent of the cases.

Another complication of syphilitic aortitis is aneurysm. It is a localized sacular dilatation of the blood vessel. Frequently the aneurysmic dilatation may rupture. Aneurysm is observed in about 22 per cent of cases of syphilitic aortitis.

Stenosis and occlusion of the coronary arteries are frequent complications of syphilitic aortitis. They are found in about 17 per cent of the cases.

Of the group of 433 cardiac patients forty one were cases of syphilitic aortitis, an incidence of 9.5 per cent. Of the forty-one cases

*From the Research Subdivision, Medical and Hospital Service, Veterans' Administration.

†Matz, Philip B.—Chief, Research Subdivision, Medical and Hospital Service, Veterans' Administration, Washington, D. C. For record and address of author see "This Week's Issue" page 1082.

twenty-eight were white patients, since 392 of the total group were white patients, the incidence of syphilitic aortitis among whites was 7.1 per cent. Of the forty-one cases thirteen were colored, since 108 of the total group were colored patients, the incidence of syphilitic aortitis in this group was 12 per cent. Of the group of forty-one cases of syphilitic aortitis, thirteen or 31.7 per cent were without dilatation, and twenty-eight or 68.3 per cent were with dilatation. In this connection it is of interest to note that three of the cases of aortitis were non-syphilitic.

A study was made of the age of occurrence of syphilitic aortitis. For this purpose twenty-nine cases were found to show the desired data. The average age at the time of the inception of syphilitic aortitis in this group of cases was found to be 33.6 years. The youngest patient was twenty years of age, while the oldest patient was sixty-three years of age.

A study was also made of the duration of syphilitic aortitis in the same group of twenty-nine cases. Among eighteen living cases of syphilitic aortitis the average duration from the date of inception to the date of this study was 8.6 years. Among eleven deceased patients the average duration was 5.2 years.

A study of the serological findings in the group of cases of syphilitic aortitis showed that 75.6 per cent gave evidence of a positive Wassermann test.

The most frequent clinical symptoms and signs of syphilitic aortitis noted in the group of cases were dyspnea, palpitation, precordial pain, fatigue, cough, swelling of legs, orthopnea, giddiness, and loss of sleep.

The most frequent coexisting anatomic heart conditions in the forty-one cases of syphilitic aortitis were aortic insufficiency, enlargement of the heart, mitral insufficiency, chronic myocardial disease, cardiac hypertrophy, general arteriosclerosis, and mitral stenosis.

The most frequent abnormal physiological heart conditions found to coexist with syphilitic aortitis were aortic incompetency, hypertension, mitral incompetency, and congestive heart failure.

SYPHILITIC AORTIC INSUFFICIENCY

Of seventy-one cases of aortic insufficiency it was found that forty-six were of syphilitic origin. Thirty of the forty-six cases had coexisting syphilitic aortitis.

Of the forty-six cases of syphilitic aortic insufficiency twenty-seven were in white patients and nineteen were in colored patients. Accordingly the incidence of syphilitic aortic insufficiency was 17 per cent in the colored group while in the white group the incidence was approximately 7 per cent. This incidence was

based upon 392 white patients and 108 colored patients. Eighty per cent of the patients with syphilitic aortic insufficiency gave evidence of a positive serology.

The most frequent coexisting cardiovascular conditions in the group of forty-six cases of syphilitic aortic insufficiency were aortitis with dilatation, mitral insufficiency, enlargement of the heart, hypertrophy of the heart, chronic myocardial disease, arteriosclerosis, and aortitis without dilatation.

The most frequent coexisting physiological heart conditions in forty-one cases of syphilitic aortic insufficiency were aortic incompetency, mitral incompetency, hypertension, and congestive heart failure.

In a study of the coexisting valvular lesions in a group of forty-six cases of syphilitic aortic insufficiency, it was found that twenty-four of the number had aortic insufficiency without any coexisting valvular disease. Sixteen of the patients gave evidence of aortic insufficiency and mitral insufficiency, six patients had various valvular lesions in combination with aortic insufficiency.

A study of the age at the time of inception of syphilitic aortic insufficiency among thirty-seven cases of the group showed that the average age at the time of inception was thirty-four years. A study of the duration of syphilitic aortic insufficiency indicates that among the twenty-five living patients the average duration from the date of inception of heart disease to the date of this study was 7.7 years. Among the deceased patients the average duration was 5.2 years.

SYPHILITIC ANEURYSM

Of the group of 433 patients, five gave evidence of syphilitic aneurysm. Of this number three were cases of aneurysm of the ascending aorta, one case showed the presence of aneurysm of the ascending and transverse portions of the aorta, and one patient gave evidence of aneurysm of the ascending, transverse and descending portions of the aorta.

SUMMARY AND CONCLUSIONS

1. Forty-one or 9.5 per cent of the group of 433 cardiac patients showed the presence of syphilitic aortitis. Of this number, twenty-eight were white patients, an incidence of 7.1 per cent, and thirteen were colored patients, an incidence of 12 per cent. A study of the serological findings in the group of cases of syphilitic aortitis showed that 75.6 per cent gave evidence of a positive Wassermann test.

Of the forty-one cases of syphilitic aortitis, twenty-eight or 68.3 per cent showed the presence of dilatation and thirteen or 31.7 per cent were without dilatation.

The average age at the time of inception of syphilitic aortitis was 33.6 years, the youngest was twenty years of age while the oldest was sixty-three years of age. Among eighteen living cases of syphilitic aortitis the average duration from the date of inception to the date of this study was 8.6 years, among eleven deceased patients the average duration was 5.2 years.

The most frequent clinical symptoms and signs of syphilitic aortitis were dyspnea, palpitation, precordial pain, fatigue, and cough.

The most frequent coexisting anatomic heart conditions in syphilitic aortitis were aortic insufficiency, enlargement of the heart, mitral insufficiency, chronic myocardial disease and cardiac hypertrophy. The most frequent abnormal physiological heart conditions coexisting with syphilitic aortitis were aortic incompetency, hypertension, mitral incompetency, and congestive heart failure.

2. Of the group of 433 patients it was found that seventy-one gave evidence of aortic insufficiency, of the latter forty-six were cases of syphilitic aortic insufficiency. Thirty of the forty-six cases had coexisting syphilitic aortitis. Of the forty-six cases of syphilitic aortic insufficiency, twenty-seven were in white patients, an incidence of 7 per cent, and nineteen were in

colored patients, an incidence of 17 per cent. Eighty per cent of the patients with syphilitic aortic insufficiency gave evidence of a positive serology.

Of the group of forty-six cases of syphilitic aortic insufficiency it was found that twenty-four had no coexisting cardiac valvular lesions and sixteen patients had a combination of aortic insufficiency and mitral insufficiency.

The average age at the time of the inception of syphilitic aortic insufficiency was thirty-four years. The average duration of aortic insufficiency in the living cases was 7.7 years, and in the deceased cases 5.2 years.

3. Among the cases of syphilitic heart disease five gave evidence of syphilitic aneurysm of the aorta, three were in the ascending aorta, one was in the ascending and transverse portions of the aorta, and one was in the ascending, transverse, and descending portions of the aorta.

It is desired to acknowledge the technical assistance rendered in this study by A. Bamberg, Assistant Statistician and O. M. Allen, Research Assistant, of the Medical and Hospital Service. It is also desired to acknowledge the helpful suggestions made by Dr. Louis N. Katz, physiologist and Director of Cardiovascular Research of the Nelson Morris Research Institute, Chicago, Illinois.

ACCOMMODATIONS FOR DRUG ADDICTS AND CONVICTS

The dedicatory exercises of the Federal Government plant for the segregation and rehabilitation of narcotic addicts were conducted May 25.

This institution is located on eleven acres in the center of a one thousand acre farm tract, seven miles west of Lexington, Kentucky. The buildings are described as having some of the features of hospital and prison with all of the facilities of a small city. The plan is for a self-contained institution with facilities for all varieties of farm activities, a sewerage system and railroad sidings.

The dedicatory address was delivered by Surgeon General Canning.

Patients were accepted as of May 29 and by July 1 the number will probably total at least three hundred. The capacity is about fourteen hundred inmates. This institution is for persons convicted of violation of Federal laws, offenders on probation and voluntary patients. The annual operating cost of this plant will be about seven hundred and fifty thousand dollars.

A similar institution is being erected at Fort Worth, Texas.

applied for the three-cent-a-day prepaid hospital service in and about New York City under the provision for twenty-one days care.

Horner Wickenden, Secretary of the Associated Hospital Service, reports that gifts amounting to thirty thousand dollars toward organization and operating expenses have been received. The Commonwealth Fund made one grant of twenty-five thousand dollars and the Josiah Macy Jr. Foundation gave five thousand dollars. There now seem to be ample funds to put the plan into operation.

This service is not a money-making proposition for the hospitals but is regarded as a public service. The coordinating council of the Five County Medical Societies has approved this plan. The only criticism of this project has come from some x-ray practitioners who feel that they should be allowed to collect a separate fee.

SUMMARY OF MORTALITY FROM AUTOMOBILE ACCIDENTS

The Bureau of the Census announces that during the four weeks ending May 11, 1935, 86 large cities in the United States reported 654 deaths from automobile accidents. This number (654) compares with 604 deaths during the four weeks ending May 12, 1934. Most of these deaths were the result of accidents which occurred within the corporate limits of the city although some accidents occurred outside the city limits.

APPLICATIONS FOR PREPAID HOSPITALIZATION

It is reported that thirty thousand persons have

CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C CABOT, M D

CASE 21231

PRESENTATION OF CASE

A fifty-three year old Irish-American building superintendent entered complaining of breathlessness

During the past year the patient noticed shortness of breath, at first after heavy exertion but more recently even after the slightest exertion. This symptom was not accompanied by either palpitation or precordial pain. During the past four months he noticed the onset of midepigastrie "discomfort and fullness," appearing about ten to fifteen minutes after meals and lasting about half an hour unless relieved by belching, flatus or induced vomiting. At first this discomfort occurred only occasionally but more recently it followed almost every meal. Approximately six weeks before entry he developed cough, without coryza or sore throat, which was more severe at night. In the morning he raised thin but later thick, yellowish, tenacious sputum. The cough was occasionally associated with substernal pain.

One month before admission, after drinking a quart of cold milk, he suddenly experienced a violent, steady, sharp stabbing pain in the lower abdomen radiating from one side to the other and up to the umbilicus. He was able to return to his home, where he went to bed. The pain finally let up in the course of about five hours. This attack was not associated with diarrhea, constipation, nausea, vomiting, chills or fever. He remained at home for three days during which time he was weak and his abdomen felt sore. He returned to work in this weak condition. Three weeks before admission he noticed for the first time edema of his ankles which had persisted. He also noted an aching pain in his right shoulder blade when he lay on it for a long time. The pain disappeared, however, upon changing position. Two days later, following exposure to a heavy snow storm for two and a half hours, he became very cold and arrived home with a shaking chill. There was no sweating or fever but he remained in bed for two days. Since that time he worked only four full days, the rest of the time he either worked half days or stayed at home all day. Thirty-six hours before admission, at 1 00 a.m., he awoke and found himself markedly out of breath,

"as if he had just run a race," and sweating profusely. He was very apprehensive and got up and sat in a chair. In about five minutes he felt somewhat relieved although he was still out of breath. He did not wheeze and had no pain or palpitation. There was no nausea or vomiting. He returned to bed and was able to pass the night propped up with six pillows. The following day he continued to be somewhat dyspneic, had some epigastric discomfort, but was able to move about the house. The following morning he entered the Emergency Ward.

He had been married twenty-five years and had three children, all living and well. There was no history of miscarriages or stillbirths. He had had a chancre followed by a rash thirty-two years before entry. He received antisyphilitic treatment by his physician for seven years, following which his blood tests were said to have been negative. He was refused life insurance nine years before admission because of a heart murmur. There was no history of rheumatic fever, chorea or hypertension.

Physical examination showed a thin, elderly, pale man in no acute distress. His retinal arteries were slightly tortuous. There were small perforations in the midline of the soft palate and a larger perforation more posterior and to the left. On examination the lungs showed dullness, diminished breath sounds, tactile fremitus and spoken voice over the left base with a narrow band of bronchovesicular breathing and crackling râles just above it. The heart was markedly enlarged both to the right and left. The left border of dullness was in the axillary line, in the seventh intercostal space. The right border of dullness was 6 centimeters from the midsternal line. The rhythm was bigeminal, with alternating pulse and occasional premature beats. Systolic and questionable diastolic thrills were felt all over the heart, both at the apex and base. The sounds were poor and nearly obscured by murmurs heard everywhere. At the apex, aortic area and base of sternum there were blowing systolic and soft diastolic murmurs. No distinction could be made between these various murmurs and it was felt that they were the same murmurs transmitted all over the heart. There was apparently no point where they were heard the loudest. In addition there were at the apex to-and-fro friction-like sounds which were more rapid than the heart beat. The blood pressure was 106/52. The abdomen was slightly protuberant with the liver extending as far down as the umbilicus. The edge was sharp, soft and smooth. There was moderate edema of the lower legs. The neck veins were full but showed no retrograde filling in the upright position.

The temperature was 102°, the pulse 115. The respirations were 28.

Examination of the blood showed a red cell

count of 3,950,000, with a hemoglobin of 90 per cent. The white cell count was 21,000, 90 per cent polymorphonuclears.

He rapidly went downhill and died twelve hours after admission.

DIFFERENTIAL DIAGNOSIS

DR. HOWARD B. SPRAGUE I should also like to be orthodox first and then make whatever brilliant leaps may seem to be advisable. But certainly there are some statements in the history that are not clear and they will have to be sidestepped or left without explanation that is satisfactory to me.

The thing that impresses me is that a man of fifty three who is known to have had a heart murmur for nine years has symptoms of congestive failure lasting only about a year. They begin with his breathlessness and his nocturnal cough, then his epigastric discomfort after meals, his substernal pain, later edema and one attack at least of paroxysmal dyspnea at night. The points which I cannot explain very well are (1) The attack of pain in the abdomen after drinking cold milk. Perhaps there is no relationship between the cold milk and the pain. Perhaps there was minor abdominal embolism or possibly it might have been an attack of aortic pain in the abdomen. (2) The statement in the physical examination "the rhythm was bigeminal, with alternating pulse and occasional premature beats." One is wrong, either the pulse was bigeminal or alternating. If it was bigeminal it was due to pseudodalternation, because pulsus alternans is not determined by the rhythm of the heart but by the alternating strength of the beats of the heart with normal rhythm. If it was bigeminal it would be due to a premature beat every other beat. That is not clear. (3) I should like to know about the friction like sounds at the apex which were more rapid than the heart beat. Of course if you can find the term, "heart beat" to the impulse of the heart then perhaps the friction sounds were twice as rapid as the heart beat occurring in both systole and diastole. I do not know what else would add to the speed of the heart beat, as far as friction sounds are concerned, except respiratory friction in addition.

It seems to me that the patient has evidence very suggestive of luetic aortitis, his age, the rather rapid downhill course and the evidence of left ventricular failure. At least we are impressed with the fact that it is a big heart, particularly in the region of the left ventricle and that the murmurs were heard all over the heart. I think that in any case with aortic regurgitation systolic and diastolic murmurs are heard all over the heart more frequently than are the murmurs in mitral disease, also in mitral disease when the diastolic murmurs become loud the systolic murmur is apt to recede. There is no history of rheumatic disease. The blood

pressure was only 106/52, somewhat low possibly the systolic has come down with congestive failure.

Certainly we know that the man did have lues. If it is true that he was treated directly after he acquired lues and if it is also true that he was antsyphed this year a late case, he must have acquired lues about 1903. If he was treated directly after that—he was treated for seven years—that would make it 1910, and it was not until December 1910 that salvarsan came on the market. Perhaps, then he was not adequately treated so far as the development of later visceral lues is concerned. He had a perforation in the palate which I am told in the absence of malignant disease or tuberculosis is practically pathognomonic of syphilis.

What else could he have if it is not luetic aortitis? Could this be rheumatic heart disease? He had a murmur for a long time, at least known for nine years. On the other hand, it is very difficult I think to know how long the murmur of syphilitic aortic regurgitation is present in a series of cases because these patients come to the physician when symptoms appear, with a rapid downhill progress, and very often they have had no previous examination for a great many years. It only happened in this case that the murmur was heard because he was examined for life insurance. It might have been just a "life insurance" murmur and perhaps of no importance but we are justified in being a little suspicious that he did have some heart condition at that time. Rheumatic heart disease with pure involvement of the aortic valves is relatively rare. Failure of the heart with normal rhythm, that is in the absence of auricular fibrillation, is rare in rheumatic heart disease. Did he have aortic stenosis and regurgitation? He had apparently systolic and diastolic thrills which were felt all over the heart at the apex and base. That is certainly very helpful information as far as diagnosing the lesion is concerned but I think that we have no clear evidence that he had calcareous aortic stenosis. I would like to know how big his aorta was. Did he have any x rays?

DR. TRACY B. MALLORY No.

DR. SPRAGUE In the differential diagnosis of aortic lues the size of the aorta by x ray is a very important point. If it is small it would be much more against the diagnosis of aortitis than if it were large. If it were large, however, it could be a rheumatic process with aortic regurgitation.

Was there a bacterial involvement near the end? He had some fever but nothing else to support that diagnosis. Could there have been a congenital heart which would cause this? The only thing would be patent ductus arteriosus which is a condition that has been known to have been tolerated well into old age. It gives a loud heart with continuous murmurs, but it seems to me a far cry. Can there have been

some strange process in the heart which made these murmurs so non-diagnostic, such as ruptured septum, or something of that sort, of either luetic or sclerotic origin. Did he have pericarditis? We have the statement about the friction-like sounds and some fever. He may show some terminal pericardial involvement. But if this is not a case of syphilitic aortitis then I shall continue to miss the diagnosis with this amount of information.

CLINICAL DISCUSSION

DR MALLORY Dr White, have you any suggestions?

DR. P. D. WHITE The matter of the attack of abdominal pain one month before admission is interesting, and then the severe attack just before he came in.

If he had an aortitis there is the possibility of aneurysm of the thoracic and lower abdominal aorta which he had some time, with rupture and sudden death.

DR. J. L. WARD I am the one whose physical examination is being "taken for a ride" but to my mind it was just as bizarre as the description states and I cannot add much more information than the description gives—it was bizarre.

CLINICAL DIAGNOSES

Luetic heart disease with congestive failure
Luetic aortitis
Aortic regurgitation
Pulsus alternans
Bigeminy
Lues

DR. HOWARD B. SPRAGUE'S DIAGNOSES

Luetic aortitis with aortic regurgitation and congestive failure
Aortic stenosis?
Terminal pericarditis?

ANATOMIC DIAGNOSES

Mycotic aneurysm of the base of the aorta and heart with rupture
Hemopericardium
Aortic stenosis, calcareous
Endocarditis, subacute bacterial, aortic
Chronic passive congestion
Perforation of palate

PATHOLOGIC DISCUSSION

DR. MALLORY I think it is quite reasonable that the physical findings should have been bizarre because the anatomical findings are. If I had tried, I could not have laid a better trap for Dr. Sprague. He certainly made the only logical diagnosis. However, the man did not have luetic heart disease. He had the senile type of calcified aortic stenosis with a perfectly

negative mitral valve. People with that type of aortic stenosis do not ordinarily die so suddenly with as short a period of decompensation as this man did. The reason for his sudden death was an unusual one. Besides the calcified masses which made up the great majority of the aortic valve there were acute fresh vegetations on the remains of the leaflets and to one side of the valve, in the sinus of Valsalva were further vegetations. When we first opened the pericardium we found it completely filled with blood and we thought we had a dissecting aneurysm or possibly a ruptured infarct of the heart. But the aorta was free from an aneurysm and there was no infarct. It was only after considerable toil that we unearthed the difficulty.



The picture shows the almost completely occluded aortic valve, in fact at the angle it was taken no lumen at all is visible. The calcified masses appear white and smooth whereas the fresh vegetations can be clearly made out as shaggy grayish tabs and warts. The perfect smoothness and complete freedom from atheroma of the ascending aorta are very characteristic of cases of calcareous aortic stenosis. Directly below the valve lies an aneurysm, appearing in the picture as a black hole. Its clearly visible outer wall is made up of the musculature of the base of the right ventricle. Its medial wall which was formed by the pulmonary artery is not visible since the aorta has fallen back over it. The second apparent cavity to the right of the aortic valve is an artificial opening into the auricular appendage made at the time of autopsy.

DR. WHITE Had we been able to examine the patient a month before we could have made a diagnosis of aortic stenosis.

DR. SPRAGUE Any explanation for the abdominal attack, was that embolic?

DR. MALLORY There is nothing to explain that.

CASE 21232

PRESENTATION OF CASE

First Admission A thirty five year old divorced American woman entered complaining of "kidney trouble"

Three years before admission she noticed a gradual loss of appetite and weight. Six weeks later, while riding on a train, she received an injury to her back following which a swelling appeared over the left kidney region. She entered a local hospital where approximately one quart of pus was removed from her left kidney. She was discharged three weeks after admission with her wound still draining. Two months later she began having pain in her right side which was associated with the drawing up of her right leg. One month later the right kidney was incised and drained. During the following year an abscess developed in the right groin which drained spontaneously and following which she was able to straighten her leg. Both kidney wounds had been draining since operation. She had had pyuria for the past two years but no hematuria, frequency or nocturia. There was no history of shortness of breath or chest pain. Before operation she had had a history of night sweats but none since. Her weight before the onset of the present illness was 142 pounds. Following her kidney operations her weight went down to 75 pounds but since then had risen to 115. At the time of admission however, she weighed approximately 90 pounds.

There was no family history of tuberculosis. She was married sixteen years before admission. She had one child fifteen years of age who was living and well.

Her catamenial history had been normal until three and a half years before admission at which time her menstrual periods had ceased.

Physical examination showed a fairly well developed but very poorly nourished woman with evident weight loss. There were two draining nephrostomy wounds and a draining sinus in the right groin. The veins over the chest abdomen and thighs were dilated. The lungs were clear throughout. The heart was not enlarged. A loud blowing systolic murmur was heard over the entire precordium. The liver was tremendously enlarged, almost reaching the symphysis. The spleen was also enlarged. There was a small hemorrhoidal varix.

The temperature was 99°, the pulse 90. The respirations were 20.

The urine was cloudy and showed a specific gravity of 1.030 to 1.040, a large trace of albumin and a sediment which was loaded with white blood cells. The red cell count of the blood was 3,180,000, with a hemoglobin of 40 per cent. The non protein nitrogen of the blood was 27 milligrams. A phenolsulphonephthalein test showed only 15 per cent excretion at the end of two hours. The serum calcium of the

blood was 8.05 milligrams per cent, the serum phosphorus 5.00. The CO_2 combining power was 44.8 per cent. The plasma protein was 7.1 per cent. A Hinton test was negative.

X ray examination showed that the kidney outlines were indistinct on both sides. On the right there was a large branching calculus in the region of the kidney pelvis. On the left there were at least two large calculi in the region of the pelvis and one in the cortex. After the administration of dye a second pelvis appeared on the left side well above the area in which the large stones appeared. The appearance suggested a double kidney with a Y shaped pelvis. The bones of the spine and pelvis were not remarkable. Examination of the chest showed slight prominent hilar shadows but no areas of consolidation or infiltration. The diaphragm was slightly elevated but smooth in outline.

Cystoscopic examination on the seventh day revealed three ureteral orifices into the bladder.

On the seventh day she was given a transfusion of 600 cubic centimeters of whole blood. Five days later a right nephrectomy was performed. She did well postoperatively, receiving two transfusions, each of 500 cubic centimeters of whole blood, on the ninth and fourteenth postoperative days. The drainage from the right side ceased. She was discharged to a nursing home five weeks after admission.

Second Admission, five months later

During this period she had remained in the convalescent home and had gained 17 pounds in weight. She voided about every four hours. There was no burning, cloudy urine or hematuria. The old left nephrostomy still drained constantly. The discharge varied from clear serum to thick, purulent occasionally bloody material. Three weeks before this entry she noticed a swelling approximately 4 centimeters in diameter on her left side between the anterior and posterior iliac spines. Heat was applied and this apparent abscess opened spontaneously. She had no fever. The sinus drained freely until about five days before admission. Four days before admission the upper and lower sinuses began to drain less freely. The temperature rose to 104.5°. Heat was again applied and when drainage had become adequate her condition improved a great deal. However it was decided to have her return to the hospital.

Physical examination was similar to that of the previous admission except that her liver at this time was smaller, extending down to the right anterior superior spine, in the midline to one centimeter below the umbilicus, and on the left as far as the midclavicular line where it disappeared under the costal margin. There was a slight yellowish tinge to the sclerae. There were two draining sinuses in the left kidney re-

gion Her weight was 105 pounds The blood pressure was 115/70

The temperature was 100.4°, the pulse 86 The respirations were 26

Laboratory findings of the urine and blood were similar to those of her previous admission The nonprotein nitrogen of the blood was 35 milligrams A phenolsulphonaphthalein test showed 20 per cent excretion at the end of two hours

An intravenous pyelogram showed a large shadow of the left kidney, in the lower pole of which were two small and three large areas of calcification apparently lying within the calices There was no filling within the lower part of the kidney The upper part of the kidney showed markedly dilated calices The secretion of the dye was somewhat retarded On the eighth day, following a transfusion of 500 cubic centimeters of whole blood, a left heminephrectomy was performed

She had a fairly stormy postoperative course She developed edema of her ankles The nonprotein nitrogen of the blood was 76 milligrams The serum protein was 5 per cent On the fourth postoperative day she was given 600 cubic centimeters of whole blood Her wound healed fairly well and she was finally discharged to a convalescent home approximately one month after entry

Third Admission, three days later She was obviously extremely sick, breathing fairly rapidly and deeply Her urine output for the past twenty-four hours had been only one ounce She was given intravenous acacia in 1500 cubic centimeters of 5 per cent glucose followed later by a transfusion of 600 cubic centimeters of whole blood She continued to be anuric in spite of further intravenous glucose, rapidly failed and died the day following admission

DIFFERENTIAL DIAGNOSIS

DR WALTER BAUER "She entered a local hospital where approximately one quart of pus was removed from her left kidney" Up to that point I do not see how we can say whether we are dealing with a perinephric abscess or a pyonephrosis

"One month later the right kidney was incised and drained" So that she evidently had the same state of affairs on the two sides I have not enough information up to this point to state just what is going on, whether we are dealing with a bilateral pyonephrosis or with an individual who had bilateral perinephric abscesses I should think the latter would be unlikely Furthermore, she continued to have a draining sinus on the side that was operated on first

She evidently had a psoas abscess in addition I cannot quite understand why She evidently developed it before the right kidney was drained

Just where it originated, I do not know If we are going to assume that she suffered from bilateral pyonephrosis I cannot understand why she had a psoas abscess on the one side

I presume some of this information is given us to help rule in or rule out tuberculosis, but I do not see that it helps either way The surprising thing is that this woman was able to be up and about with a large collection of pus, first on one side and then on the other, without ever having had chills, fever and the like If she did have such symptoms there is nothing in the history to tell one so

Once we have seen the patient we have evidence that the kidneys were drained and not a perinephric abscess

The enlargement of the liver and spleen makes us wonder whether we are dealing now with a complicating amyloid disease in an individual who has had a purulent infection for the best part of three years

The laboratory findings do not quite fit together It is a little surprising that one would have acidosis due to kidney failure sufficiently great to reduce the CO₂ combining power to 44 and yet have a normal nonprotein nitrogen and no greater elevation of the serum phosphorus than we have in this instance She has a good specific gravity and yet a very poor phenolsulphonaphthalein output, with a normal nonprotein nitrogen, all one can say is that her kidneys were evidently functioning sufficiently well to clear her blood and maintain a normal blood chemistry so far as nonprotein nitrogenous products go

X-RAY INTERPRETATION

DR GEORGE W HOLMES This is a plain film and shows the large branching calculus as described in the report There are two small shadows here which might be outside the kidney pelvis in the kidney substance, but I would not be certain about that It would be quite an important diagnostic point if we could show a calcified mass in the cortex of the kidney It would be more indicative of tuberculosis I do not see any particular change in the bone

This is after the intravenous dye You see here the shadow of the extra pelvis and part of the ureters There is definite evidence of bifid pelvis These shadows out toward the cortex are still present The outlines of the kidneys often show much better after the injection of the intravenous dyes than they do before, but I still cannot make them out well enough to say anything definite about their shape This is a more localized film made in an attempt to show the kidney outline I think you can see here a rather large shadow like a fused kidney The film taken of the chest shows slight elevation of the diaphragm, nothing definite There is no evidence of tuberculosis

DIFFERENTIAL DIAGNOSIS CONTINUED

DR. BAUER So that up to this point all we can say is that we are dealing with an individual who has bilateral renal calculi probably secondary to renal infection, a bilateral pyelo-nephritis probably being the forerunner of these stones. The fact that kidney stones occur so rarely in renal tuberculosis would seem to rule out tuberculosis as the cause of the original kidney infection. She was cystoscoped on the seventh day and was found to have three ureteral orifices. Therefore, we know that she has a bifid pelvis on the left side and two ureters which enter the bladder independent of one another.

Nothing is said about the spleen at this second examination.

She evidently still had a pyuria.

"On the eighth day a left heminephrectomy was performed." I suppose this operation was performed because the evidence obtained from the retrograde pyelogram revealed that the mischief lay in the lower kidney pelvis. I presume it was hoped that she had sufficiently good kidney tissue in the remaining upper half of the kidney to enable them to do a heminephrectomy and get away with it. I should think, to say the least, that it was a most courageous undertaking.

If this nonprotein nitrogen of 76 was not immediately postoperative we already have evidence that the kidney tissue which remained was not adequate to care for her.

"On the first day of the third admission she was given 600 cubic centimeters of whole blood," evidently in the hope that it would be of some help so far as the anuria was concerned. However she continued anuric despite further intravenous glucose and died the following day. From the description of her rapid deep breathing one might think she had a final intercurrent infection such as a bronchopneumonia.

To sum up I should think that we were probably dealing with an individual who originally had had bilateral pyelonephritis as a result of which she developed bilateral kidney stones and subsequently bilateral pyonephrosis. The likelihood of a tuberculous origin is quite remote. Since she had had an infection of three years' duration and subsequently developed enlarged liver and spleen, I should think the most reasonable interpretation is that she had a complicating amyloid disease. This amyloid disease may have been so extensive that it involved the remaining left kidney in addition to the liver and spleen. If so we have one adequate reason why the genito-urinary surgeon did not have better luck with the heminephrectomy. The remaining kidney tissue probably functioned very poorly. I should think that she died of uremia with probably a complicating bronchopneumonia.

CLINICAL DISCUSSION

DR. GEORGE G. SMITH This was a woman with a very fine fighting spirit, otherwise she would not have gone through what she did go through. She had had a bilateral nephrostomy done three years previously and I do not know how long she carried her nephrostomy tubes. They evidently were taken out before the infection in the kidneys had entirely cleared up and as a result infection in her right kidney and in the lower half of the left kidney persisted, which was a factor undoubtedly in the formation of these bilateral stones. It would appear that when she had the nephrostomy done on the left kidney she entered the hospital where it was done more or less as an emergency with a large swelling on that side and the accumulation of a pint or so of pus. The surgeon undoubtedly just opened the abscess, which probably was an abscess of the lower half of the left kidney, and put in a tube. At the operation which I did, the heminephrectomy, there was no evidence that the upper portion of the kidney had ever been drained. When she came in the preceding fall Dr. Colby did a right nephrectomy on her and she improved a good deal after that operation but continued to drain pus from the sinuses on the left side. Her condition improved enough so that it seemed as though it was advisable to remove the lower half of the left kidney. In doing this we were not entirely guided by hope, as Dr. Bauer would imply, but we did have fairly definite evidence that the only kidney function that she had was delivered by the upper half of the left kidney. The intravenous pyelogram showed no function whatever from the lower half of the left kidney but did show a pretty good function from the upper half of the left kidney and there was no evidence of obstruction to drainage, no evidence of stone.

In the operation on this left kidney we found that the lower half of the kidney was just a mass of disintegrated tissue. We liberated about two ounces of pus which lay in a cavity surrounded by fragments of kidney tissue in the middle of which these stones were floating. The stones were removed. There were just a few pieces of kidney tissue. They could not possibly have had any secretory function. They were separated from the upper half which appeared to be solid and of quite good size. I did not free it up entirely. I did just as little as I could in order to get rid of the suppurating lower half and the stones, but my impression was that the upper part of the kidney was in good shape.

The patient did very well after operation and the wound healed well. She got up and walked around the ward. I do not remember just when that nonprotein nitrogen of 76 was, but my impression is that it was just after operation but

then came down again. At any rate she left the hospital in better condition than when she came in.

I did not see her when she came back with the terminal condition but I do not think that she had insufficient kidney tissue left to support life. She went to pieces all of a sudden. If she had had a chronic condition there that was responsible for death, she would have gone downhill gradually instead of having this sudden collapse. I think we probably will find that she had acute infection, probably septicemia. Whether she had anything in the lungs, I do not know.

DR MALLORY The renal function was done about one week before she left the hospital, following nephrectomy, and it was perhaps a week postoperative.

CLINICAL DIAGNOSES

Uremia
Bilateral nephrolithiasis
Pyelitis
Double left kidney
Amyloidosis

DR WALTER BAUER'S DIAGNOSES

Pyonephrosis, bilateral
Nephrolithiasis, bilateral
Amyloidosis
Uremia

ANATOMIC DIAGNOSES

Pyonephrosis, bilateral
Nephrolithiasis, bilateral
Double kidney and ureter, left
Operative wounds right nephrectomy, left heminephrectomy and nephrostomy
Perforation of descending colon
Peritonitis, general
Amyloidosis—liver, spleen, kidney and adrenals
Pulmonary atelectasis

PATHOLOGIC DISCUSSION

DR MALLORY Dr Smith was right in thinking that something suddenly happened to this patient. There is absolutely nothing in the clinical record to give any indication of what it was. She developed a general peritonitis and at autopsy we found a perforation in a portion of the descending colon in apposition with the nephrectomy wound. There must have been persistent infection which eroded through the peritoneum and the colon, finally producing a large

enough hole for the escape of fecal contents and the development of a generalized peritonitis. With the exception of that terminal event, everything was exactly as predicted. She had a very severe generalized amyloid disease, the most marked case we have had here in ten years. The liver was three times the normal size, the spleen weighed over 800 grams. The remaining portion of the left kidney also showed extensive amyloid infiltration, as Dr Bauer predicted. From the appearance of that remaining kidney tissue I think it would be impossible to say whether there was renal insufficiency, though she certainly could have had only a small amount of renal reserve. The apparent volume of the remaining kidney tissue was certainly misleading. The kidney had evidently been a double one and we found the two separate ureters without difficulty. The lungs were entirely negative.

DR JOSEPH S BARR I saw this woman on her first or second admission at Dr Colby's request and she presented what I think were most of the clinical signs of amyloid disease. She had had chronic sepsis for a long period of time. She had bronzing of the skin, and I wondered if the adrenals showed anything.

DR MALLORY They were almost completely replaced by amyloid infiltration.

DR BARR I think that is the explanation. She had a large liver and spleen, of course. She had some hemorrhoids and dilated veins of the abdomen and thorax which I presume represented the collateral circulation associated with portal obstruction. Most of the patients I have seen have had terminal ascites of the abdomen and edema of the legs. I do not know whether that is due to the portal obstruction or to kidney involvement or some elements of both. At the time I saw her she had neither ascites nor edema of the legs. I do not believe there is any treatment for this complication except adequate drainage and an attempt to clear up the sinus. Whitbeck has recommended the use of liver extract and states that with this treatment the liver has decreased in size. I wonder if that is not due to fibrosis rather than the cure of the disease.

DR BAUER We must also remember that we occasionally see amyloid disease without sepsis or suppurative disease.

DR MALLORY In a hospital of this sort where tuberculosis is ruled out, that is our actual experience. In the majority of our cases we have been unable to determine the etiology.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

COMMITTEE OF PUBLICATIONS

R. L. LEE, M.D., Chairman HOMER GAGE, M.D.
R. R. OSGOOD, M.D. R. M. SMITH, M.D.
F. H. LANEY, M.D.

EDITORIAL STAFF

REED HUNT, M.D. STEPHEN RUSHMORE, M.D.
JOHN P. BUTTERFIELD, M.D. HANS ZIMMER, M.D.
GEORGE R. MINOT, M.D. BENJAMIN WHITE, Ph.D.
FRANK H. LANEY, M.D. HENRY H. VINT, M.D.
STURGEON WARREN, M.D. ROBERT N. NYE, M.D.
GEORGE L. TOWN, Jr., M.D. ROBERT M. GREEN, M.D.
C. GUY LANE, M.D. CHARLES C. LUND, M.D.
WILLIAM A. ROGERS, M.D.

WALTER P. BOWEN, M.D., Manager & Editor

ASSOCIATE EDITORS

GEORGE G. SMITH, M.D. WILLIAM B. FEEDE, M.D.
JOSEPH GARLAND, M.D.

THE NEW HAMPSHIRE MEDICAL SOCIETY

PUBLICATION COMMITTEE

CARLETON R. MITCHELL, M.D. HENRY H. AMES, M.D.
WARREN H. BUTTERFIELD, M.D.

THE VERMONT STATE MEDICAL SOCIETY

PUBLICATION COMMITTEE

WILLIAM G. RUCKER, M.D. C. F. DALTON, M.D.
L. H. ROSS, M.D.

SUBSCRIPTION TERMS: \$6.00 per year in advance postage paid
for the United States Canada \$ 8.00 per year \$9.00 per year
for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal office & Fenway.

The Journal does not hold itself responsible for statements
made by a contributor.

Communications should be addressed to The New England
Journal of Medicine & Fenway Boston Mass.

WHITHER BOSTON!

THE alarming increases of the tax rate in Boston in recent years and the continuance of the policy of free spending and of huge borrowing for current expenses, foreshadow inevitable drastic retrenchment which cannot be much longer postponed.

When retrenchment comes, the Department of Health will be obliged to economize along with other Departments of the City. Fortunately for the public, His Honor the Mayor last year called together a Committee of experts on municipal health administration under the chairmanship of Dr. Wilson G. Smillie*. They were asked to prepare a plan of retrenchment which would provide for considerable savings in cost of operation without seriously curtailing the very important health services rendered by that Department. This Committee performed

its function admirably. Its major recommendations, however, have not yet been acted upon and little saving has been made. We believe, nevertheless, that the Mayor was impressed with the value of the Report.

We hope that when the day of reckoning comes or, better still, before that day arrives, the Report of Dr. Smillie's Committee will emerge from its pigeonhole and that its proposals will be put into effect.

If some of the reorganizations proposed by the Committee cannot be made without changes in existing laws, are steps being taken to modify such laws?

SUMMER CAMPS

THE Boston Health League continues to demonstrate its varied activities in the interests of improving health conditions by again publishing its pamphlet of standards and equipment for summer camps. This pamphlet produced by the efforts of the Summer Camp Committee of the Health League, varies from year to year, it is not a stereotyped list of instructions, but each year reviews the situation anew and stresses some particular point that may need emphasis, bringing each year, also, new advice and counsel to the deliberations of the committee.

These standards are offered in order that leaders and others responsible for children in summer camps may have available a guide for measuring to some extent, equipment and standards. It is recognized that all camps may not meet them in every respect, but it is hoped that they may be useful in helping camps attain certain desirable objectives.

This year's bulletin is particularly complete in its scope setting standards for equipment as to sleeping quarters, infirmary, and fire fighting, for sanitation, for staff and leadership for food and for dining room facilities. As was done last year the need for rest is emphasized on the basis that fatigued children cannot derive proper benefit from camp activities, and that over excited children are also fatigued children. A warning is given against over keen rivalry in competitive sports, and suitable rest periods are recommended.

Considerable detailed advice is given concerning instruction and safety in swimming and boating, and a physical examination blank is incorporated in the brochure.

The importance of the summer camp is steadily increasing as the number of children who have no other available method of indulging in normal outdoor activities in the forest in the country and on the water is increasing. This applies not only to the so-called underprivileged classes countless numbers of children in comfortable economic circumstances are similarly situated. The camp director whether engaged

*Recommendation of the Committee appointed by the Mayor of Boston to survey the Health Department—March 4, 1934
New England Journal of Medicine Vol. 313, No. 16, pp. 871-872, Apr. 19, 1934.

in a business enterprise or a philanthropic one, must recognize his or her responsibilities, not only in safeguarding the lives and health of young campers and in affording them facilities for recreation, but also in adding concretely to their educational opportunities

A QUESTION OF GOOD TASTE

UNDER the heading "Dr Truesdale Case" the *Boston Herald* has published an editorial in which appear two statements which concern the medical profession and especially the Chairman of the Committee on Ethics and Discipline of the Massachusetts Medical Society

The first in referring to Dr Truesdale is "we realize only too well that some of his ultra-conservative brethren would regard such an effort as damning evidence of his alliance with the unholy press"

The "effort" refers to a defence of Dr Truesdale. We are only concerned in the wording and sentiment expressed in this editorial. The *Herald* ought to know that the medical profession is not excessively conservative. Its aims and purposes are first and always to promote the welfare of humanity and never to exploit the profession or any of its members. It is persistently and consistently placing before the public its achievements in order that advantage may be taken of the resources of science and art in dealing with disease and it should be recognized that the technic employed is that which is built on accumulated knowledge for which the profession should be credited rather than individuals. Due honor will be accorded to those who have made the larger contributions but should be conferred by the profession in the first instance. History shows that the public has not always shown discrimination in dealing with the standing of physicians. For this reason newspaper publicity as applied to individuals is rightly deplored because of the emotional appeal often displayed and the desire to entertain the public. If dependence could always be placed on unprofessional opinion, the situation would be different.

The second objectionable reference is in the use of the expression "Dr Cheever's semi-censorious comments seem superfluous"

How an unprofessional opinion on a subject as delicate as that involved in the relations of doctors and the public may be judicially defined by a layman is certainly open to discussion.

The opinion expressed by the Chairman of the Committee on Ethics of the Society was in answer to the request of Dr Truesdale for a conference at which the whole subject was discussed and the letter of the Chairman was the expression of the committee as a whole and may be regarded as that of the profession which is,

we contend, better qualified to establish ideals relating to the behavior of doctors, than even an intelligent layman.

We refrain from any discussion of the actual facts, but we do contend that the statement that the Chairman's so designated "semi-censorious comments are superfluous," is in poor taste.

Even with our high regard for the *Boston Herald*, we are confident that the medical profession will continue to formulate its own ideals of professional conduct.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

PADDOCK, BRACE W * B A, M D Columbia University College of Physicians and Surgeons 1904 F A C S Chief of Staff, House of Mercy Hospital, Pittsfield. His subject is "Postgraduate Medical Education" Page 1069 Address 7 North Street, Pittsfield, Mass

MONROE, ROBERT T A B, M D University of Michigan Medical School 1924 Faculty Instructor in Medicine, Harvard Medical School Associate in Medicine, Peter Bent Brigham Hospital. Physician in Chief, Long Island Hospital. His subject is "Chronic Arthritis in Hyperthyroidism and Myxedema." Page 1074 Address 721 Huntington Avenue, Boston.

SEGAL, MAURICE S B S, M D Tufts College Medical School 1932 Teaching Assistant, Department of Physiology, Tufts College Medical School 1932-33 Resident Physician, First and Third Medical Services, Boston City Hospital 1935-36 His subject is "Auricular Fibrillation and Auricular Flutter in the Course of Subacute Bacterial Endocarditis" Page 1077 Address Boston City Hospital, Boston

FITCHET, SETH M B A, B P H, M D Harvard University Medical School 1921 F A C S Visiting Surgeon, Orthopedic Department, Children's Hospital Assistant in Surgery, Massachusetts General Hospital Associate Surgeon, New England Baptist Hospital. Consulting Surgeon, Josiah B Thomas Hospital, Peabody, and Massachusetts Eye and Ear Infirmary Assistant in Orthopedics, Courses for Graduates, Harvard Medical School His subject is "The Tilted Pelvis and Scoliosis Treatment Preventive and Operative" Page 1082 Address 319 Longwood Avenue, Boston

DOWNING, J G A B, M D Harvard University Medical School 1915 Assistant Professor of Dermatology, Tufts College Medical School Assistant Dermatologist, Boston City Hospital Dermatologist, Beth Israel and St. Elizabeth's Hospitals His subject is "Surgi-

*Died May 22 1935

cal Problems of Fungous Origin Report of a Case of Sporotrichosis in Massachusetts" Page 1085 Address 520 Commonwealth Avenue, Boston.

MATZ, PHILIP B See This Week's Issue, page 894, issue of May 9, for record of author His subject is "A Study of Heart Disease Among Veterans. V Syphilitic Heart Disease." Page 1087

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY*

THOMAS ALMY M.D., <i>Chairman</i> 140 Rock Street Fall River Mass	C J KICKHAM M.D., <i>Secretary</i> 524 Commonwealth Avenue, Boston Mass
--	--

ETIOLOGY AND TREATMENT OF POSTPARTUM SEPSIS

Despite the substantial progress made in asepsis and antiseptics, there are still existent occasional epidemics of postpartum sepsis, and isolated cases are always to be found in every obstetrical hospital

It has been proved beyond reasonable doubt that not only are the ordinary pus producing bacilli and cocci present in the vagina of the non pregnant as well as the pregnant woman, but that there are also virulent organisms found at times, even the streptococcus hemolyticus. Every time the genital tract is subjected to trauma, there are created numerous portals of entry for the invasion and propagation of pathogenic organisms. It is really a genuine act of charity on the part of Providence that we do not have more sepsis than now seems possible. The answer is partly found in the ever present resistance on the part of the host, plus the rigorous attention to surgical technique. Postpartum sepsis is sometimes the result of a lighting up of an old supposedly quiescent gonorrheal infection.

The treatment should be directed along two main channels. First, the resistance of the patient should be maintained as high as possible. Regular prenatal examinations every three weeks the first seven months, and every two weeks thereafter. Pregnant women should be urged to abstain from visiting crowded places, meeting halls, theatres, etc., especially during the winter months when we always have with us the upper respiratory infections. At the slightest suggestion of a 'cold' the patient should be put to bed until all traces of the infection have dis-

appeared. No sexual intercourse should be indulged in during the last two months of pregnancy.

The longer we live the more we learn that the majority of patients in labor, if left alone, will deliver themselves spontaneously. Watchful waiting should always be the keynote. Generally speaking, no delivery should be attempted until there is full dilatation of the os.

Some clinics have of late years been instilling a 4 per cent aqueous solution of mercurochrome into the vagina as a part of the general preparation of the patient in labor, with a noticeable diminution in postpartum morbidity.

Vaginal examinations fortunately have been replaced by rectal appraisals. It may be suggested here that in doing a rectal examination it is good surgical technique to cover the introitus with a sterile sponge, therefore excluding the possibility of invading the vagina with the thumb.

All attendants in the delivery room should wear masks covering the mouth and nose.

A thorough external preparation with either mercurochrome (the water soluble 4 per cent solution or the acetone alcohol solution) or with picro acid is all that is being used in the majority of clinics to prepare the field for delivery. Avoid forceps as much as possible. Do episiotomies when necessary rather than allow the perineum to tear of its own accord. Repair visible wounds under strict surgical asepsis. Maintain surgical perineal toilet throughout confinement, and especially the first three days.

Postpartum infections fortunately are confined mostly to the genital tract, without invading the blood stream. The treatment should always be conservative—general hygienic and supportive measures. Collections of pus should of course be treated surgically. If a generalized infection does appear, it is the consensus of the present day that conservative treatment gives the patient a better chance of recovery.

MASSACHUSETTS LEGISLATIVE NOTES

THE CHIROPRACTIC BILL

The *Boston Herald* reports under date of May 28 that the Legislative Committee on Public Health has reported favorably a bill providing for the licensing of chiropractors in Massachusetts with five dissenting members.

When this matter came before the people of this State on the referendum in 1932 the vote was more than two to one against it.

The question is: Will the Legislature accept the responsibility of enacting this bill after an impressive record of the sentiment of the people of this Commonwealth against the recognition of this cult?

It should be appreciated by the members of the

A series of short selected articles by members of the Section will be published weekly. Comments and questions by subscribers are solicited and will be discussed by members of the Section.

Committee that chiropractic is apparently a declining cult so far as the number of practitioners and endorsement of the public are concerned. If there proves to be a majority sentiment in the Legislature favoring the passage of this bill, it will demonstrate a lack of knowledge of the great contributions of medical science to the welfare of the race and an absence of appreciation of the illogical theories upon which the theory and practice of chiropractic are based.

The claims of these cultists have been carefully examined by competent persons and have been found to be unsound.

House Bill 717, which provides for the inspection by injured employees of medical reports of insurers, physicians and of hospital records on file with the Department of Industrial Accidents, has been ordered to the third reading in the Senate.

MISCELLANY

AN AWARD TO DR. EDWARD MARTIN

Dr. Edward Martin, Emeritus Professor of Surgery at the University of Pennsylvania, will be awarded the honorary degree of Doctor of Laws by Temple University at its commencement on June 13 in recognition of his services in the field of surgery and public health.

Dr. Martin has been a conspicuous figure in Pennsylvania medical, surgical and public health activities. Born in Philadelphia in 1859, he received his A.B. from Swarthmore in 1878 and his A.M. in 1882. He was graduated in medicine from the University of Pennsylvania in 1883.

Dr. Martin was Director of Public Health in Philadelphia from 1903 to 1905, has been a member of the Board of Education since 1911, and Commissioner of Health, State of Pennsylvania. He was consulting surgeon 5th Army Corps, Spanish American War, Lieutenant Colonel, World War and Colonel, 364th Medical Regiment.

Dr. Martin has many friends in Boston.

CORRESPONDENCE

MEDICAL EXPERT COMPANY

May 25, 1935

Editor, *New England Journal of Medicine*,

After reading your editorial in the May 23 issue of *The New England Journal of Medicine* entitled "Why Do Physicians Not Testify Against Physicians in Court?", I am sure you would be interested in a resolution which has just been passed by the Connecticut State Medical Society, as follows:

Whereas members of the medical profession are habitually called upon to give ex-

pert testimony in courts of law in behalf of clients from whom they derive remuneration, and

Whereas, their testimony might easily be biased because of personal or particular interests, thereby giving rise to evil practices, and

Whereas, biased or prejudiced testimony results in conflicting views not wholly based on medical knowledge or theory, and

Whereas, conflicting testimony tends to destroy public confidence in the medical profession, now therefore

Be It Resolved That a committee of three be appointed to study the subject of medical expert testimony in Connecticut and elsewhere, this committee to confer with the Judicial Council of Connecticut, the State Bar Association and any State Association of persons who habitually are called upon to give expert testimony, and to explore the possibilities of devising a state system whereby experts giving testimony shall be selected and paid by the Court even though other experts appear for either party."

Some years ago an attempt was made to establish what might be called a European system of court appointed and court paid experts which came to naught in Connecticut, largely because there was no opportunity in the law proposed for each side of the controversy to bring in experts of their own. This fault we have avoided in the statement of this resolution.

It will probably be found that the legal profession is individually if not collectively opposed to any such procedure as is contemplated by our resolution, for from the lawyer's point of view, the more controversy the better. However, I was assured by the Chief Justice of the State of Connecticut that such an inquiry and study might be profitable.

I believe that if the professional bodies, other than lawyers, become convinced that this is the way to do it, that enough interest can be obtained from manufacturers' associations, insurance companies and other influential organizations to overcome the objections of the lawyers, if such develop.

Very truly yours,

JAMES R. MILLER, M.D.

179 Allyn Street,
Hartford, Conn.

RECENT DEATHS

GOLDBERG—ELIAS GOLDBERG, M.D., of Brookline, Massachusetts, died May 25.

He formerly lived in Chelsea and Dorchester, and had retired from practice. His death was assumed to have been caused by mental depression resulting from financial reverses.

HEMEON—**FREDERICK CHIPMAN HEMEON** M.D., of 9 Standish Street, Dorchester died at his home May 26 1935. He was born in Liverpool, Nova Scotia in 1869. His early education was acquired at Acadia College Wolfville Nova Scotia and he graduated from the Jefferson Medical College in 1897.

He practiced for thirty-eight years in Dorchester. His membership in the Massachusetts Medical Society dates from 1912. He was a Fellow of the American Medical Association.

His widow Mrs F C D (Shetland) Hemeon a son, James Russell Hemeon of Trenton New Jersey and a daughter Mrs Elizabeth H Speir of Hempstead Long Island survive him.

NEWTON—**FRANK L. NEWTON** M.D. of 73 Madison Avenue Newtonville, Mass and formerly a practitioner in Somerville died at his home May 30 1935. He was born in Truro April 9 1855 and graduated from Boston University School of Medicine in 1884. He joined the Massachusetts Medical Society in 1916. He was a former President of the Gynecological and Obstetrical Section of the American Institute of Homeopathy.

His widow Mrs Josephine Newton, and two sons, Allison L. Newton and Frank H. Newton all of Newtonville survive him.

TALLMAN — **AUGUSTUS LITTLEFIELD TALLMAN** M.D. of 9 Princeton Street, East Boston died at his home May 20 1934. He was born in Bath Maine January 17 1850 and graduated from the Bowdoin Medical School in 1881. He joined the Massachusetts Medical Society in 1883 and retired in 1932. He was prominent in the Masonic order and interested in the civic affairs of East Boston. A sister Mrs Julia T. Trost, of Brooklyn New York survives him.

NOTICES

LAWRENCE CANCER CLINIC

Established 1928

Lawrence Mass.

June 4 1935

To the Physicians of the North Half of Essex County

Dear Doctor

The regular Lawrence Cancer Clinic to be held at Lawrence General Hospital, 1 Garden Street, Lawrence, upon Tuesday June 18, at 10 00 A.M., will be a Demonstration Clinic with Channing C. Simmons M.D., of Boston Surgeon-in-Chief to the Collis P. Huntington Memorial Hospital and member of the Cancer Commission of Harvard University Boston present as consultant. You are invited to accompany any of your patients whom you desire shall have this service or to send them with a note and a report will be returned to you. This service is gratis. Your attendance at the Clinic is always welcome.

This Clinic is endorsed by the Committee on Post

graduate instruction of the Massachusetts Medical Society

Committee

ROY V. BAKETEL, M.D.

CHAS. J. BURGESS, M.D.,

FRED K. D. McALLISTER, M.D.

JOHN J. McARDLE, M.D.

HARRY H. NEVENS, M.D.

THOS. V. UNLAC, M.D.

J. FORREST BURNHAM, M.D., *Chairman.*

UNITED STATES CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission has announced open competitive examinations as follows

Medical Technicians

Applications for positions of senior medical technician and medical technician must be on file with the U S Civil Service Commission Washington, D C not later than June 24 1935.

The entrance salary for senior medical technician is \$2,000 a year and for medical technician \$1,620 a year.

Full information may be obtained from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city which has a post office of the first or the second class or from the United States Civil Service Commission Washington, D C.

REPORTS AND NOTICES OF MEETINGS

THE SUFFOLK DISTRICT MEDICAL SOCIETY

A meeting of the Suffolk District Medical Society was held at the Children's Hospital on the twenty-fourth of April. Doctor DeNormandie presided. Doctor Frothingham submitted a report concerning the abuse of charity at the Boston City Hospital and it was moved to send a notice to all members of the Society suggesting that they cooperate with the authorities and not send patients to the Boston City Hospital who are able to pay a physician. It was moved to enlarge the scope to include the study of the abuse of charity in other hospitals in Boston.

Doctor Lanman was the first speaker of the evening and presented two cases of exstrophy of the bladder. These cases are rather rare and at the Children's Hospital they have been treated by transplanting the ureters into the rectosigmoid. It is best to wait until the children are nearly four years old so that they will be able to cooperate in training the rectal sphincter. Many methods have been used but for the past six years Doctor Lanman has felt that it is necessary to do only one side at a time so that temporary blocking will not be of any significance. It is not necessary to use a catheter at the site of anastomosis. The transperitoneal route has been used without a single case of peritonitis in any of the twenty-two patients so

far operated upon. The advantage of this method of approach is that the surgeon can see how the ureter lies and avoid any kinking, so that there will be less likelihood of urinary obstruction. The cases are not drained. At a later date the mucous membrane of the bladder is removed because it continues to secrete, may be a source of irritation, and later may lead to carcinoma. The results have been very satisfactory and kidneys have uniformly shown no marked damage, and the patients can go from four to six hours without emptying the rectum. Doctor Colby briefly discussed this presentation, and said that it was used at the Massachusetts General Hospital in cases of carcinoma of the bladder.

The second paper was presented by Doctor Eley on "Hemophilia." Studies have recently been made on the effect of human placental tissue extract on the blood clotting mechanism. It has been found that tissue coagulants have some species of specificity. This extract contains a coagulant and is potent even in high dilutions. One hundred thousandth of a milligram causes a change in the coagulation time. In rabbits intraperitoneal injection of the extract causes a prompt reduction in the coagulation time which lasts from thirty-six to forty-eight hours. In a normal human being five cubic centimeters of the extract given by mouth caused the coagulation time of the venous blood to drop from six and a half to one and a half minutes, and the capillary clotting time to drop from two and a half to one and a half minutes.

This method has been applied in a few cases of hemophilia, and lantern slides were shown demonstrating several cases where the coagulation of the venous blood took from three to three and a half hours, and the patient was given five cubic centimeters of extract followed by a glass of ice water, and both the capillary and venous coagulation times immediately dropped to normal and stayed there from two to six days. Therefore, hemophiliacs vary considerably in the frequency with which they get more extract. Some cases need to have alkaline water administered with the extract, in order to neutralize the acid of the stomach before it is effective. In one case a method has not been found by which the coagulation time can be brought to normal. In one case the extract has been applied locally to a scalp that had been oozing blood for several days and a clot was immediately formed.

Doctor Ladd spoke on the treatment of ulcerative colitis in infants and children. Three cases were shown. The Bacteroides fragilis has been isolated in most of these cases of idiopathic ulcerative colitis. Fifteen out of twenty-five have been treated surgically within the past ten years. Four of these are apparently cured, having been well for several years after the closure of a transverse ileostomy, which had been open for two years. Two others have gained weight and are in good condition after one year with an enterostomy. One died of carcinoma of the colon, one of volvulus, one of

hemorrhage, and one of multiple perforations. Doctor Ladd stressed the fact that we must treat these cases much earlier than has been done in the past, because many of them will die, if left alone, either of the disease or of its common complications, hemorrhage, perforation, and peritonitis. The structural change in the colon is greater the longer the disease has gone on, and there is progressively less chance of cure. After a reasonable amount of medical treatment has been tried an ileostomy should be done, and then one and a half or two years later, if there is no evidence of disease in the colon, it may be closed. Older children give less favorable prognoses than the younger ones. For two or three weeks following operation there is considerable loss of fluid, and electrolytes through the ileostomy, but after this the stools become less liquid and more formed. Skin irritation is difficult to control around the ileostomy opening for the first month. A mixture of kaolin and oil protects the skin better than most other preparations. No irrigations are used.

The last paper was on "Carbon Tetrachloride Poisoning" and was presented by Doctor Heyl. An infant two and a half years old after having swallowed "Energine" was brought into the hospital. It vomited and was drowsy on entry. It appeared to be normal on physical examination other than its drowsiness, but after twenty-four hours it began to run a fever of one hundred and three degrees. The fever continued, and on the third day there was a sudden severe series of convulsions which required ether, intravenous glucose and calcium to alleviate the condition. The patient was in coma for the next three days, signs of kidney damage became evident and the urinary picture was that of acute nephritis with edema. On the fifth day he became anuric. The liver became enlarged to below the umbilicus, and the blood nonprotein nitrogen reached a high of eighty-eight milligrams per cent on the ninth day and then slowly fell. The patient apparently completely recovered. During his stay in the hospital intensive calcium treatment in amounts of from one to one and a half grams a day were given together with from one to two hundred grams of glucose a day, and a low fat, low protein diet. Adequate catharsis was maintained.

Doctor Heyl discussed briefly the pathological physiology of this type of poisoning. Vomiting and nausea occur almost immediately with hemorrhage into the gastric mucosa. A late series of symptoms occur on the third or fourth day when signs of liver and kidney damage become evident. There is central necrosis of the liver with fatty degeneration which may proceed to acute yellow atrophy with or without acute nephritis, anuria, and a high nonprotein nitrogen. It has been found that a high calcium intake reduces the mortality and morbidity of this type of poisoning. A high protein diet increases the severity. The glucose intake must be maintained. There is a great increase in the guanine in the blood and the symptoms are similar to those of guanidine poisoning. This substance is

normally taken care of by the liver and if it is not detoxified it interferes with lactic acid being oxidized to carbon dioxide and water. Therefore in poisoning by guanidine or carbon tetrachloride there is an increase in the lactic acid content of the blood. The blood sugar is definitely lowered. Calcium injections are needed to keep the sugar at a proper level because apparently the adrenal mechanism necessary to raise the blood sugar does not function if there is not enough available calcium in the blood. Alcoholics are highly sensitive to carbon tetrachloride poisoning.

ESSEX NORTH DISTRICT MEDICAL SOCIETY

The ninety-fifth Annual Meeting of the Essex North District Medical Society was held at the Anna Jaques Hospital in Newburyport May 15 1935 with seventy-five present.

The president, Dr. Parr, opened the business meeting at 12:30 P.M., following the ward rounds at 11:30 A.M.

The minutes of the previous meeting were read by the secretary and approved.

The treasurer's report was read and approved.

In the report for the Committee on Funds, Dr. Sargent reported that the District Society had paid in full the amount for loan from the Permanent Funds and stated that the money on deposit was \$1754.96.

Dr. Sweetser, chairman of the nominating committee, reported the following nominations for Society officers for 1935-1936:

President: C. F. Warren, Amesbury.
Vice-President: E. P. Laskey, Haverhill.
Secretary: E. S. Bagnall, Groveland.
Treasurer: E. S. Bagnall, Groveland.
Auditor: A. M. Hubbell, Haverhill.
Censors: R. L. Toppan, Newburyport; J. F. Walsh, Lawrence; W. W. Ferrin, Haverhill; A. E. Chesley, Lawrence; P. J. Mullen, Amesbury.
Councillors: R. V. Baketel, Methuen; J. F. Burnham, Lawrence; H. F. Dearborn, Lawrence; A. P. George, Haverhill; T. R. Hoaly, Newburyport; F. W. Snow, Newburyport; L. T. Stokes, Haverhill; R. L. Toppan, Newburyport; W. D. Walker, Andover.
Nominating Councillor: J. F. Burnham, Lawrence.
Alternate Nominating Councillor: T. R. Hoaly, Newburyport.

Commissioner of Trials: R. C. Hurd, Newburyport.
Committee on Funds: G. S. Allen, Lawrence; G. B. Sargent, Lawrence; H. Kapp, Haverhill.

Correspondent to *New England Journal of Medicine*: E. S. Bagnall, Groveland.

Delegate to Committee on Public Relations of Massachusetts Medical Society: E. S. Bagnall, Groveland.

It was moved and seconded that the secretary cast one vote for the list as submitted.

In the absence of Dr. Manahan, Dr. Bagnall read for the committee the report on the death of Dr. Lane. It was moved, seconded, and passed that the

report be spread on the records and a copy sent to the family.

Dr. A. M. Hubbell read for the committee the report on the death of Dr. Charles E. Durant. It was moved, seconded, and passed that the report be spread on the records and a copy sent to the family.

Dr. Ferrin read for the Committee the report on the death of Dr. Frank H. Coffin. It was moved, seconded, and passed that the report be spread on the records and a copy sent to his sister.

Dr. Bagnall, as delegate to the committee on Public Relations of the Massachusetts Medical Society, reported the reorganization of the State Committee.

He then remarked that the District Committee on Public Relations has considered it desirable that liaison groups in each of the centers of population of the district be organized to build up better machinery for the initiation of projects for the mutual benefit of the profession and the public and the opportunity for the carrying out of policies initiated by the Public Relations Committee of the State Society or of the District Society. He also remarked that the subcommittee on "Social Legislation and Insurance" of the Massachusetts Society have under way plans to educate lay groups regarding compulsory sickness insurance. This campaign will get under way in the fall.

Dr. Bagnall moved that the Public Relations Committee of this Society be authorized to select groups in each of the centers of population to be known as the city committees. The purpose of these committees will be to further the mutual interests of the profession and the public in their respective communities acting coordinately with the Public Relations Committee of the District Society and through them with the State Committee on Public Relations. The motion was seconded and unanimously passed.

Dr. Snow moved that a committee be appointed by the chair to study the by-laws of this Society and to make such recommendations as may occur to them for possible changes in the by-laws. His motion was seconded and passed unanimously.

Dr. Bagnall called attention to a letter received from the Commissioner of Health regarding diphtheria immunization. He stated that it is the desire of this and all other public health agencies to promote so far as possible diphtheria immunization in the offices of the private physicians, hoping that we may some day see the time when it may supplant clinic work without at the same time lessening the number of children actually protected.

Dr. Burnham urged that as many doctors as possible attend the American Medical Association meeting in Atlantic City in June. An outlay of only \$60.00 would be needed including transportation, room and meals.

After the business meeting the members adjourned to the dining room.

Dr. Burnham moved that the members pay 75c toward their dinner, the balance to be paid by the Society. This motion was seconded and passed.

After dinner, Dr Elliott P Joslin gave a very interesting talk on "Some Highlights in the Management of Diabetes" He opened his remarks by stating that he had had ninety six dead diabetic doctors whose average age at death was sixty three, and who had the disease for eight years at the time they died (This represents fairly accurately the age of death and the duration in years of the disease in the 981 cases of diabetics who died since 1931) Of the 328 diabetics who died in Boston last year, there was only one who was under fifteen years of age Dr Joslin has now 196 diabetic children who have had the disease for ten years and have a life expectancy of twenty more years Studies of death certificates at the State House revealed that "diabetes" did not appear as a cause of death in 37½ per cent of known diabetes through a six-year period He stated that there are 3,000,000 people who have or will have diabetes in the country at the present time and that there is a diabetic heredity in about 30,000,000 people in the United States

Dr Joslin stressed the importance of laboratory work in the management of this disease and urged wholesale methods in order to lessen the cost to the people This could be done by having one or two days a week in the laboratory when blood sugars and other tests would be done, and the cost per test would be materially reduced.

The speaker then mentioned several valuable new lines of research which indicated that the pituitary (acting through the adrenals to the pancreas) seemed to be a highly important cause of the disease and its mortality Coma could not be produced in animals whose pituitary gland had been removed

Dr Joslin then presented in a very practical way the management of diabetic diets indicating that carbohydrate should be given from 100 to 200 grams per day, protein as in the normal individual, and fat as needed to maintain weight Old people need very little protein He demonstrated a very simple routine for the administration of insulin, based on whether the urine test showed red, yellow, green, or blue color—dosages of insulin varying from 20 units down to nothing, at intervals of three to six hours depending on the test Coma patients should receive half-hour doses of insulin, the size of the dose varying with the duration of the disease One diabetic coma case was relieved with 30 units, while another received 780 units before being relieved

Dr Channing Frothingham was then introduced by the President with the subject of "Physicians, Patients and Pay" He opened his remarks by saying that the two main jobs were to teach the doctor to give the best of medical care, and teach the layman to go to get it. Good medical care is expensive, poor medical care is more expensive In 1910, the American Medical Association had a drive to clean up the lowest class medical schools in the country At that time there were forty five in the United States, and two of these were in Massachusetts Now, there are five or six in the United States and three in Massachusetts

Dr Frothingham indicated the importance of

choosing a family medical adviser to take care of all medical problems for every family If specialists are necessary, the family medical adviser will decide it. The opinion of the specialist is to be censored by the family medical adviser because of his particular knowledge of the patient as well as his disease He expressed a dislike of the office hour because of the need for hurry in examinations He indicated his disapproval of a patient going directly to specialists, and he thought specialists ought to be rated by some authority other than themselves He indicated the desirability in his opinion of a change in hospital management, so that each hospital would be a complete unit where mental conditions, tuberculosis, cancer, and all other diseases should be cared for in the same group He expressed his disapproval of the principle of seniority as controlling hospital staff appointments or management

Referring to the report of the Committee on the Costs of Medical Care, he showed that if the waste resulting from poor medical expenditure—that is, money spent on quacks and patent medicines—were eliminated, the same amount of money would give good medical care to all the people He indicated that there was something wrong with the present system of providing free medical care so extensively He cited the Legal Aid Society which does not expect the lawyer to provide free legal service, but pays him for his services from funds contributed by private individuals Dr Frothingham expressed as his conviction that it was desirable that some method of budgeting or insurance must be worked out for the care of low income groups There should be free choice of physician and control by the profession in the operation of such a plan, and a continuation of the fee system rather than a salary system The salary system would eliminate the stimulus to better work which is inherent in fee system

The meeting adjourned at 4 00 P M

E S BAGNALL, *Secretary*

PEABODY HOME FOR CRIPPLED CHILDREN

ANNUAL MEETING

The Annual Meeting of this organization was held May 21, 1935, with the election of the following named officers

Honorary president, Mrs Edward B Kellogg, president, Mrs Gilbert C Brown, Jr, vice presidents, Mrs Charles V Minott and Mrs Henry F Leonard, secretary, Mrs James B Hill, treasurer, Mrs E B Kellogg, trustees, Mrs Melville M Bigelow, Mrs Gilbert C Brown, Jr, Miss Helen Temple Cook, Mrs Arthur A. Cushing, Mrs Lewis A. Crosett, Mrs Leroy Greene, Mrs James B Hill, Miss Rosamond Lamb, Mrs Henry F Leonard, Mrs Charles V Minott, Mrs Martha Peabody Prowse and Mrs Joseph W Phinney

The president made the following designated appointments

Mrs N S Smith as superintendent Miss Flor ence Walkins assistant treasurer together with an advisory board consisting of Daniel B Ruggles, at torney Stephen Roberts and Dr Frank R. Ober Those appointed to the medical staff are Dr Ken neth D Blackfan Dr Elliott C Cutler Dr Frank R. Ober Dr Harvey Cushing and Dr Harris P Mosher

In addition to reports of the Superintendent and Committee Dr Frank R. Ober and Dr Gerald Hoef fel submitted reports of the professional work.

HAMPDEN DISTRICT MEDICAL SOCIETY

REPORT OF SPECIAL MEETING

A special meeting of the Hampden District Medical Society was held at the Springfield Academy of Medicine May 20 1935 at 8 15 P M to discuss the subject of Medical Economics in Relation to Proposed Compulsory Health or Sickness Insurance Legislation. About seventy members were present Dr Theodore S Bacon President, in the chair

Dr M A Tighe of Lowell, the first speaker by invitation discussed some of the compulsory sickness insurance schemes or laws already in effect in other countries citing some recent surveys made under the auspices of the American Medical Association and various committees. He drew attention to the report or rumors that Germany with a fifty year experience of such a system was likely to abandon it in the near future that the British system while in some respects the least objectionable had been greatly modified since its institution and was still criticized as unsatisfactory and that administration of such systems generally was expensive and uneconomical. He urged vigorous support of the American Medical Association in opposition to ill advised and hasty legislation on these matters.

Dr Charles E Mongan of Somerville present also by invitation, as a representative of a special committee of the State Society stated that measures like those under discussion had been urged before and in several instances by the same sponsors. He mentioned one bill pending before the State Legislature which was thoroughly pernicious and which if passed would place something like 80 per cent of the average physician's practice in the hands of a politically appointed commission under which the physicians serving would have the status of employees to be hired and removed at will, outside of the civil service. He urged that the medical profession of the State of Massachusetts make their own investigations present their own plans and solutions of whatever problems they found to exist in the state, and that adequate financial appropriation be made to assist their work. He opposed trying to copy the systems of Great Britain or any European nation whose population circumstances and problems did not correspond with ours.

Dr James R Miller of Hartford Conn. another invited guest and speaker mentioned the similarities

in population origin economic condition, and medical problems between Massachusetts and Connecticut, which states have the highest per capita wealth in the country. He quoted from a recent author to the effect that in practice it has always been difficult to realize both liberty and equality and that the balance had shifted back and forth since the beginning of American history of government. He stated that general sentiment in the medical profession in his state also favored investigation and development of any plan by the local medical organizations.

There was considerable discussion participated in also by a visitor from the Michigan State Medical Society who had spent some months in Europe studying the sickness insurance schemes in effect there. Inquiry was made as to the official attitude of *The New England Journal of Medicine* as an organ of the profession in this section.

A motion was made and unanimously passed as follows: "Resolved That the Hampden District Medical Society heartily endorses the stand taken by the representatives of the State Medical Society and the American Medical Association regarding compulsory sickness insurance and pledges its enthusiastic support to the program of the Public Relations Committee to educate the public as to the disadvantages of such legislation."

Questionnaires sent out by the District Public Relations Committee were also collected.

THURSDAY AFTERNOON CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

Dr Henry A. Christian held the usual Thursday afternoon clinic on April 11. The first patient had entered the hospital with a chief complaint of shortness of breath. She had had paroxysmal attacks of dyspnea for several months and recurrent attacks of bronchial asthma. Doctor Christian showed this patient particularly because of her general pasty pudgy appearance with a thinning of the eyebrows and dry skin with slight superficial scaling. In spite of a loss of appetite in the last six months, she has gained weight and has had hoarseness for about a year. The diagnosis of myxedema is frequently not made, particularly in the earlier stages. This patient's basal metabolic rate although unsatisfactory because of her cough was minus twenty-two her blood cholesterol was three hundred and five milligrams per cent. Doctor Christian did not recall having seen bronchial asthma associated with myxedema before but he expected that treatment of the myxedema would probably improve the other condition because probably the mucous membranes of the bronchi are edematous from the myxedema, thus accentuating the asthma. Some patients show the typical picture of myxedema at a higher metabolic level than do others and although minus twenty usually is taken as the point below which myxedema exists, no such definite level can be strictly adhered to.

Doctor Christian then discussed a patient who had had a history of high blood pressure during a pregnancy seven years ago, since which time her blood pressure remained elevated, and she showed evidence of renal damage. This patient was demonstrated on the fourteenth of March, at which time she had a pericardial friction rub. This condition persisted until death and at postmortem a marked layer of fibrinous exudate over the visceral and parietal layers of the pericardium was found. The kidney was atrophied and the cortex thinned. It was pale and coarsely granular. Grossly and microscopically it was of the glomerular type of nephritis, although a vascular lesion was demonstrated also.

A patient was discussed who was not shown because of her illness. This was a twenty-seven year old girl who on admission complained of severe weakness. She was apparently well until three months ago when she noticed herself getting pale and tiring easily. For the past ten weeks she has had constant tingling of her fingers. Physical examination was essentially negative except for the pallor and an edematous larynx. The red blood cell count was one million and the hemoglobin twenty-two per cent. The cell volume was above normal. The white blood cell count was two thousand, eight hundred and fifty with sixty-six per cent polymorphonuclear cells. She had total gastric anacidity even after the injection of histamine. The problem here is whether this patient has a primary pernicious anemia or perhaps a leukemic condition. Pernicious anemia is rare below the age of twenty, and in this age group aplastic anemias and leukemias make up the bulk of the anemias. However, the latter condition usually has some free hydrochloric acid in the stomach. This patient seemed weaker than the average primary anemic with the same blood count. She was given intramuscular liver extract and her reticulocytes rose from 0.5 of one per cent to 1.8 per cent twenty-four hours after this treatment. Doctor Christian mentioned the fact that such anemic patients may have such a fluctuating reticulocyte count spontaneously, and, therefore, this may not be a response to the treatment. He felt that some of the patient's fever of one hundred and three degrees might have been due to a reaction to the intramuscular liver. She responded later remarkably to the liver therapy and obviously was a case of pernicious anemia.

Another patient was spoken of who had a red count of three million and a hemoglobin of twenty-five per cent. This was a seventy-five year old woman who had had abdominal pain for one and a half years before entry. This was generalized with occasional radiation to the lumbar region bilaterally. It was usually preceded by nausea and occasionally by vomiting and necessitated a hypodermic for relief. On physical examination she was pale with a slight yellow tint and some examiners thought they felt a mass in the right lower quadrant. A barium enema showed a constant filling defect in the cecum. She was operated upon on the eighth of April, after

having been built up with transfusions, and a carcinoma of the cecum was removed together with some involved local lymph nodes. A nodule in the liver was found to be a small echinococcus cyst. Doctor Christian emphasized three points in regard to this patient: first, an unexplained anemia in the older age group which does not respond to liver therapy should cause the doctor to suspect a neoplasm in the mid stomach or the large intestine, particularly the cecum, because in these two places obstruction will not occur until late; secondly, such people should be explored even though the mass has been palpable for some time, because it may be excisable and often curable; thirdly, even if the regional lymph nodes are involved, often they can be removed and a cure effected.

A man was presented with a red count of one and a half million and a hemoglobin of twenty per cent. He had had a cold in January 1935, and several attacks of breathlessness since then with severe dyspnea on exertion. Physical examination disclosed a very pale man. His epigastric region was distended and tympanic, and a mass was suggested in the right upper quadrant between the mid line and the right nipple line. Doctor Christian pointed out that this was just the type of patient in which the physician must hunt for a gastrointestinal neoplasm particularly in the cecal or mid gastric regions, because in these locations there are often no symptoms of carcinoma. The cecal type very often may be removed with resultant cure, while the gastric type is not amenable to treatment except very rarely. This patient's stools consistently had a positive guaiac test, but the barium enema was negative. Subsequent x-ray study revealed evidence of a carcinoma in the midzone of the stomach, apparently in operable.

GREATER BOSTON MEDICAL SOCIETY

A meeting of the Greater Boston Medical Society was held at the Beth Israel Hospital on the evening of April 30. Dr. Herrman Blumgart presided. Dr. Frankwood E. Williams spoke on "The Relation of the Physician to the Problem of Economic Security," in which he discussed certain general principles. He said that many changes are and will be taking place in all parts of society, and that our problem is a widespread one which includes all parts of the United States and indeed the world. Medical men are not finding it possible to make an adequate living and many patients are not getting adequate medical attention. The first reaction has been to protect oneself and can be likened to the weavers' attitude when looms were first invented where they reacted by smashing the machines.

A recent survey in California led, a few weeks ago, to the California Medical Association coming out in favor of compulsory health insurance. The survey pointed out that one-third of the physicians of California have an annual income of less than \$2,000, and more than half have an income of less than \$3,000. Seventy-five per cent have less than

\$5,000 On the other hand more than half of the families of California have an income of less than \$1,200 and the medical attention needed in these families is approximately twice that needed in the group with incomes of \$5,000 or more (three per cent of the families). The question which arose in California was not if they should have health insurance but what form of insurance it should be. The situation is much the same over the rest of the country. Some are in favor of the status quo others advocate complete socialization others voluntary insurance, others hospital insurance etc. California is also using the so-called outletting plan where price levels are not reduced in the regular market, but other markets are sought where medical services are dispensed at whatever price they will bring. In other words the doctor lets the poorer class have his services for less than the richer class. This plan is being carried out with the help of social workers who investigate the families and acquaint the doctor with the conditions.

All of the above methods have the common aim of developing a technic to provide money with which to pay for medical care. Doctor Williams asked the question "Are we not playing with a small enemy?" The man with little money really has only a little to pay with his employer will not pay him more. The ordinary medical plan reduces the wages of men whose wages are already too low for an adequate standard of living. According to the ideals upon which our democracy was founded every man is entitled to adequate medical care among other things, if he is willing to work. The average man like the doctor is willing and able to work but he is not free to do so. The physician is in the same position as the laborer although perhaps on a slightly higher level and the same social forces that block the laborers also block the physicians. Both are at the mercy of the humanitarian feeling of the few people that hold the economic power and who make profit and not honest work the foundation stone of our civilization. Doctor Williams suggests that we keep this attitude in mind when we formulate plans for he believes that we should present a united front with the workers. Production should be for use and not for profit.

While the medical profession must work out the details of any plan that pertains to its profession, it must also insist on having a voice in any large social change that may take place because it is profoundly involved. In other words medical problems cannot be solved simply medically. An attempt to solve the larger problems will in large part solve our own. Not until we are economically free can we be professionally free.

Doctor Williams closed the meeting by saying that he was in favor of the eventual socialization of medicine although not at this time as it would play into the hands of those who would prevent our having any say in anything. When production is socialized then it is all right for medicine also to be socialized.

MASSACHUSETTS GENERAL HOSPITAL CLINICAL MEETING

The Massachusetts General Hospital held a Clinical Meeting on March 28. Dr. Arthur W. Allen presided. Doctor Schwab presented the first case. A twenty-three year old girl had been run over by a wagon eighteen years ago. This accident was followed by two days of semi-consciousness and a left decompression was done. Eight years ago she began having attacks of convulsions with nausea, vomiting and headache. Three years ago she had several of these attacks in one week. Two years ago they were coming every day. By x-ray there was an enlargement and displacement of the left ventricle and at operation an arachnoiditis with a collection of fluid was found over the motor area. The adhesions were cut and drainage provided through the dura. Since operation she has had only a few seizures.

Doctor Abbott presented a case of a twenty year old girl who started to have seizures in 1933 with loss of consciousness but without injury to herself. In the hospital she went into status epilepticus with the convulsions chiefly on one side. A diagnosis of hysteria was made and it was found that her father had attacked her mother in the presence of the child when she was eight years old. It was believed that this was the precipitating factor.

Doctor Mixer presented a man with Jacksonian epileptic attacks in one arm. On exploration it was found that electrical stimulation over the promotor cortex caused a definite blanching of this area and a generalized convulsion. This gyrus was excised and there have been no seizures since.

Dr. James B. Ayer spoke on The Selective Follow Up System of the Massachusetts General Hospital. On the advice of a special committee appointed to study the situation the Massachusetts General Hospital has adopted a system where selected patients are followed. They are referred to the correct clinic on the right day with a definite appointment, and the system is as nearly automatic as possible. A blank is filled out on discharge. One part is given to the patient telling him exactly when and where to go. Another part of the slip is held in the record room until the day of the patient's appointment, and then goes to the proper clinic with the record. The other part of the blank is pasted on the house record. If the patient fails to return and the physician is desirous of seeing him the secretary sends a letter. In the nerve clinic in a period of six months studied, sixty four per cent reported on the card alone, and a letter caused twelve per cent more to report. Age incidence made no difference and the interval to the time of appointment apparently was insignificant. The definite date is felt to be important.

Doctor Codman briefly discussed this paper and wondered if it would not be advisable for the trustees to pay for a department of follow up with a statistician and a few clerks. This would also facilitate the ease with which any member of the staff could se-

cure records for any statistical study he might wish to make

Doctor Cobb spoke on "The Causes of Convulsions," and stressed certain points. We must not think of epilepsy as hopeless. There are over sixty causes which Doctor Cobb presented on a chart. Only eight per cent have an inherited element. The causes can be grouped under the headings of real physical mechanism which are chiefly, first, altered conduction, secondly, increased irritability, thirdly, oxygen lack, fourthly, change in hydrogen ion concentration.

As to the excitant area of convulsions, Doctor Cobb said that vasovagal "spells" which are related to the respiratory and heart rate arise in the hind brain. Autonomic "spells" arise in the hypothalamic region. There are several special areas each of which has its own form or pattern. The aura is a warning before the actual fit. If the aura arises in the occipital region with the observation of lights, etc., loss of consciousness comes late, and convulsions occur simultaneously all over the body. In the auditory aura there is vertigo followed by unconsciousness and a widespread convulsion. If the stimulus arises in the precentral area, loss of consciousness comes late. It is important to observe and record accurately the convulsion in these patients in order to attempt to establish the focus of origin. A moving picture of a man having a convulsion was shown.

Dr W. Jason Mixter spoke on "The Surgical Treatment of Epilepsy." One method of attack from a surgical point of view is to cause a diminution in the impulses passing over the sympathetics to the vessels of the brain. This is accomplished by a resection of the cervical dorsal ganglia bilaterally. There is practically no mortality and fourteen per cent are totally relieved, with about eighteen per cent more improved. Direct stimulation of the brain at the time of operation is used in attempting to locate the focal point in order that this may be excised, but this has given unsatisfactory results. Superficial cysts on or within the brain substance, as well as scars, may be excised. No attempt is made to close the cavity which is left in the brain, and the coagulating current is used as little as possible. When a trigger point is found on electrical stimulation, it shows a definite blanching just before the convulsion and is due to a narrowing of the finer arteries. Brain tumor is the commonest cause of convulsion after the age of forty. Doctor Mixter's personal criteria for operation in epilepsy are first, the attacks must be frequent and severe enough to incapacitate the patient; secondly, there must be some localizing sign indicating at least which side the lesion is on; and thirdly, other methods of treatment should be tried in an attempt to account for the convulsions in some other manner. Doctor Mixter follows his patients very carefully and tries to protect them from other precipitating factors in so far as is possible.

In the discussion which followed, Doctor Cobb said

that repeated convulsions over a long period of time give a permanent damage to the brain with definite loss of nerve cells, but it is possible to have epilepsy continue for many years without very marked mental deterioration.

THE NEW ENGLAND HEART ASSOCIATION

Dr W. D. Reid presided at the monthly meeting of the New England Heart Association held in the Evans Memorial building at the Massachusetts Memorial Hospitals on March 25. Doctor Reid presented the first paper on "Some Observations upon Palpitation," in which he stressed the importance of emotions in causing palpitation, a relation which has been shown physiologically. The general physician needs in particular to be reminded of this fact.

Dr M. A. Lesser spoke on "Primary Bilateral Pulmonary Thrombosis" and reported the case of a seventy-three year old carpenter who before entry had been treated outside of the hospital two weeks for pneumonia, and who for six weeks before entry had had soreness between the scapulae. Two weeks before entry he had a sudden sharp excruciating pain over the right scapula which later shifted to beneath the left scapula, and was accompanied by the spitting of blood. On the fourth day after entry he had a sudden attack of pain, screamed, and died. Physical examination had shown distant heart sounds, but no murmurs or accentuated pulmonary second sounds. There had been a few small areas of dullness in the subscapular area and a blood pressure of one hundred and seventy-three over seventy. Coronary thrombosis had been the first consideration, and T_1 and T_2 were inverted.

Doctor Branch discussed the pathological findings in this case, and said that there were multiple pulmonary infarcts and a primary pulmonary thrombosis. Thromboses may be caused by damage to the vessel wall, damage to the blood, alterations in the rate of blood flow, or a change in the direction of flow. Many old healed infarcts were found. Doctor Branch indicated that this condition may be more frequent than is commonly believed. This man had marked arteriosclerosis of the pulmonary artery which tended to slow down the blood flow. By a careful investigation of the small vessels of the lungs he found many thrombi straddling the bifurcation of small arteries which had gradually built themselves up to a point where they could occlude the vessel. Many thrombi were completely organized and recanalized, the new vessels having an endothelial lining. There have been only twenty-four cases of this condition reported in the literature. The causes of pulmonary thromboses were reviewed. They are the following: primary sclerosis of the pulmonary artery with longstanding chronic passive congestion, a luetic lesion especially of Ayerza's type, or embolic phenomena, forming a foundation for thromboses.

In Ayerza's disease there is chronic cyanosis, dyspnea, a slight ventricular hypertrophy, chronic cough, secondary polycythemia with hypertrophy of

the bone marrow and a sclerosis of the pulmonary artery. The Wassermann is frequently positive.

Dr F H Pratt discussed "A Transitional Region between Skeletal and Cardiac Muscle." He has been studying the heart from the point of view of the comparative physiology of the muscle. In cardiac muscle the fibres are syncytially joined so that a stimulus at any point is in the vertebrates carried throughout the structure. In certain invertebrates however and in the lymph hearts of amphibia the beat is aroused by nerve cells governing the different parts of the syncytium just as they govern the units of skeletal muscle. A lymph heart transplanted by Miss Marion Reid's method, thereby deprived of all nerve influence is found to assume eventually the main characters of ventricular muscle showing a transition from the neurogenic to the myogenic type of rhythm even in the form of the action current.

Dr W D Reid presented "An Oscillograph for Electrocardiography." He demonstrated his machine and showed slides taken with it. By this method waves of a frequency of six to eight hundred per second can be photographed and details of cardiac waves not recorded by the string galvanometer can be studied. It is possible so to spread out the wave that one beat covers one yard of paper. The clinical value of the machine has not yet been fully demonstrated.

Dr G Levene spoke on "Roentgenographic Study of the Heart. A Moving Picture of the Heart." The pictures were made from a model mechanical heart called a phantoscope demonstrating the diagnosis from the fluoroscopic examination of the human heart. Fluoroscopic pictures of the heart with extra systoles, sinus arrhythmias, auricular fibrillation, heart block both complete and partial, and thyrotoxicosis were shown. Other conditions were likewise demonstrated. Doctor Levene said that x-ray diagnoses of heart conditions are just about as accurate as clinical diagnoses. Accurate measurements are very important in this connection. In the diagnosis of coronary thrombosis by x-ray there is either a straight or convex left border of the heart, and when viewed under the fluoroscope the amplitude of the excursion of this border is definitely diminished.

THE ROLE OF PERIPHERAL CIRCULATORY FAILURE IN CLINICAL MEDICINE

Dr Dana W Atchley of the Presbyterian Hospital, New York delivered a lecture on "The Role of Peripheral Circulatory Failure in Clinical Medicine." April 26 under the auspices of the New England Heart Association. Doctor Atchley stressed a few simple principles which cause peripheral circulatory failure a condition that is the physiological result between the disparity in the circulating blood volume and the necessities of the body. He reviewed briefly the clinical picture of shock with a decreased cardiac output due to decreased venous return which in turn is caused by dilatation of the capil-

laries from anoxemia with the passage of plasma into the tissues. Nitrogenous waste products accumulate and tend to further damage the capillary walls.

The common mechanisms causing peripheral shock are as follows: first, direct blood loss or loss of water and electrolytes; secondly, loss of serum from the capillaries; thirdly, toxins causing capillary dilatation and fourthly, capillary dilatation due to nervous stimulation. Doctor Atchley briefly discussed the history of the treatment of this common clinical condition and pointed out that over one hundred years ago these fundamental points were discussed by Shaughnessy and applied by him to the treatment of cholera, but it was not until 1909 that the treatment of cholera by intravenous injection of saline became generally advocated. Diabetic coma had been treated in this way some seventy five years ago but the alkaline treatment overshadowed the more rational form of therapy until recently in diabetes. The loss of salts and water is partly due to the loss associated with severe glycosuria and partly due to the base lost by excretion. Shock is the chief cause of death in diabetic acidosis. In simple intestinal obstruction and in fistulous openings of the upper intestinal tract, electrolytes and water are lost, and if not returned will lead to peripheral circulatory collapse. In burns the exudation of serum may lead to shock and it has been shown that seventy per cent of the total blood volume may be lost from one-sixth of the total body surface area in this manner in twenty four hours.

In Addison's disease there is an increased permeability of the kidney to sodium with a resulting high loss of sodium chloride and water thus resulting in a picture similar to other types of peripheral collapse.

In heat prostration there is likewise salt depletion and dehydration through loss of fluid through the pores. Bile peritonitis causes a loss of fluid into the peritoneal cavity and may produce collapse.

Histamine in large doses will cause a rapid dilatation of the vascular bed which leads to a typical peripheral collapse. Doctor Atchley spoke of a case of snake-bite observed by him where it was necessary to inject seventy two hundred cubic centimeters of saline intravenously over a course of sixteen hours in order to combat the circulatory collapse produced by the snake venom. This principle is not usually carried out in the treatment of snake and spider bites. In severe infectious diseases collapse may occur due to dilatation of the vascular bed with capillary damage. Fear and cold may cause such peripheral failure as well as extensive cardiac infarcts.

Much of the postoperative surgical shock is due to peripheral circulatory failure and not cardiac failure so that salt solution is more often indicated than digitalis. As has been pointed out by Fishberg the observation of the venous pressure is of great importance as it is always increased in cardiac failure and, with rare exceptions, is always down in peripheral failure. Very rarely venous

pressure may be up because of venous constriction

The longer shock exists the harder it is to treat, and the higher the mortality. As an emergency measure fifty per cent glucose may be given to draw fluid into the blood from the tissues but, following this, saline solution should be used in large amounts. Amazingly large amounts of fluid may be given without affecting the venous pressure, but after the venous pressure starts to rise it is possible to damage the heart if the fluid is given too fast. The normal heart can take fifteen hundred cubic centimeters immediately without any rise in venous pressure, although if the heart is damaged it will rise before this. Overloading the heart in cases of shock is a very rare occurrence. In certain cases the salt depletion is faster than the water loss, and, therefore, when this is true it is advisable to give from 12 to 15 per cent saline. In advanced shock large transfusions are indicated because of the contained protein which helps to retain the fluid within the circulation.

Gum acacia in the past has given severe reactions, but may now be procured in purer form and is perhaps of use in some cases. Doctor Atchley said that salt solution should always be given intravenously especially because of the decreased ability to absorb subcutaneous solutions in these cases. Vasoconstrictor medicines are contraindicated and adrenalin has been found to cause a decrease in circulating volume after a temporary increase.

In answer to several questions Doctor Atchley said that shock in early coronary thrombosis is an excellent protective mechanism and for this reason does not call for treatment. He has seen one case of pneumonia respond well to fifty per cent glucose. He has seen no obvious benefit from oxygen therapy in shock. The rapidity of loss of sodium chloride in the diabetic may be tremendous when insulin is stopped, and marked retention is observed after insulin treatment is resumed.

SOUTH END MEDICAL CLUB

The next regular meeting of the South End Medical Club will be held at the office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston, on Tuesday, June 18, at 12 noon. The speaker will be Donald Munro, M.D., F.A.C.S., Assistant Professor of Neurological Surgery at the Harvard Medical School and Visiting Surgeon in charge of Neurological Surgery at the Boston City Hospital. The title of his talk will be "The Responsibility of the General Practitioner in the Case of Injuries to the Skull and Brain." All physicians are cordially invited to attend this meeting. Luncheon will be served at 1 o'clock.

SOCIETY MEETINGS, CONGRESSES
AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK
BEGINNING MONDAY, JUNE 10, 1935

Tuesday, June 11—
12:30-4 P.M. Ward Visit, Massachusetts Eye and Ear Infirmary

Thursday, June 13—
*12 M. Clinico-Pathological Conference. Massachusetts General Hospital.
†12 M. Clinico-Pathological Conference. Children's Hospital.

Saturday, June 15—
*10-12 Staff rounds at the Peter Bent Brigham Hospital. Open to practicing physicians.
*Open to the medical profession.
†Open to Fellows of the Massachusetts Medical Society.

June 10—American-Canadian Medical Golfers Play at Atlantic City. For details write Bill Burns, Executive Secretary, 4421 Woodward Avenue, Detroit.

June 10 and 11—American Radium Society. See page 1066, issue of May 30.

June 10 and 11—American Proctologic Society will meet at the Marlborough-Blenheim, Atlantic City. For information address Frank G. Runyeon, 1361 Perkiomen Avenue, Reading, Pa.

June 10 and 11—The Certified Milk Producers Association of America will meet in Atlantic City, N. J. Information may be obtained on application to Dr. Harris Monk, 360 Park Place, Brooklyn, New York.

June 11—American Heart Association. The Eleventh Scientific Session will be held from 9:30 A.M. to 5:30 P.M., at the Hotel Claridge, Atlantic City, N. J. The program will be devoted to various subjects on cardiovascular disease. Gertrude P. Wood, Office Secretary, 50 West 50th Street, New York, N. Y.

June 11—American Neisserian Society will meet at the Hotel Claridge, Atlantic City, New Jersey.

June 12 and 13—Academy of Physical Medicine, Annual Meeting. See page 1066, issue of May 30.

June 17-19—The Medical Library Association will meet in Rochester, New York. For information address Miss Frances N. A. Whitman, Librarian, Harvard University Schools of Medicine and Public Health, Boston, Mass.

June 17 to 21—Convention of the Catholic Hospital Association will be held at Creighton University, Omaha, Nebraska. For information address the Most Reverend Joseph Francis Rummel, D.D., Bishop of Omaha.

June 18—South End Medical Club. See notice elsewhere on this page.

June 18—Lawrence Cancer Clinic. See page 1101.

June 24-28—American Urological Association and Western Branch Society, American Urological Association, will meet at the Palace Hotel, San Francisco, California. For details write Dr. Charles P. Mathé, 450 Sutter Street, San Francisco, California.

June 27-29 Inc.—British National Association for the Prevention of Tuberculosis will be held at Southport, England. Persons desiring further information should write to Miss F. Stickland, Secretary of the Association at Tavistock House North, Tavistock Square, London, W. C. 1, England.

July 1-23—University of Freiburg i. Br. will hold a vacation course of the medical faculty. For information address Akademische Auslandsstelle der Universität Freiburg i. Br., Schwimmbadstrasse 8, Germany.

July 22-27—Seventh International Congress on Industrial Accidents and Diseases, Brussels, Belgium. The American Committee of the Congress is under the chairmanship of Dr. Fred H. Albee, New York, for the Section on Accidents, and that of Dr. Emery R. Hayhurst, Columbus, Ohio, for Industrial Diseases. The American delegation to the Congress will sail from New York on July 8 and visit London, Amsterdam, The Hague and Paris, and, optionally, Budapest. Physicians interested in the Congress or in the medical tour in conjunction with it, may address the Secretary, Dr. Richard Kovacs, 1100 Park Avenue, New York City.

October 7-10—American Public Health Association will meet in Milwaukee, Wisconsin. For information address the American Public Health Association, 50 West 50th Street, New York City.

October 21-November 2—1935 Graduate Fortnight of the New York Academy of Medicine. See page 898, issue of May 9.

October 28-November 1—The Twenty-Fifth Clinical Congress of the American College of Surgeons. See page 1065, issue of May 30.

The New England Journal of Medicine

VOLUME 212

JUNE 13 1935

NUMBER 24

OLD AGE AND BASAL METABOLISM*

BY FRANCIS G. BENEDICT, M.D. (HON.)†

WITH the view of extending its observations on the physiology particularly the metabolism, of human beings from birth to old age, the Nutrition Laboratory has in the past five years made a special effort to secure measurements on people over sixty years of age. This has already resulted in the publication of metabolism measurements on a group of elderly women* and in the report of a comprehensive physiological study of an extraordinarily vigorous 91 year old man.¹ Meanwhile further observations on elderly people both men and women, have been made by a field worker. It is the purpose of this present report to record these observations and assess them along with the old age data already published by the Nutrition Laboratory. The difficulties of studying the metabolism of normal people of advanced age can hardly be overestimated. Complete cooperation from the subjects is necessary and a hospital environment is prohibited both features that contribute to increase the difficulties of securing suitable subjects. The opportunities for studying the metabolism of youth or middle age are frequent, especially in the physiological laboratories of colleges, where large numbers of normal individuals are available. Observations on human beings beyond middle age are, however, usually confined to those who are hospitalized or to those who have reached the convalescent stage in a hospital. It is our firm belief that measurements on so-called "hospital normals", although having perhaps for diagnostic purposes a certain value, are not to be considered as representing the true picture of the normal physiology of people of these various ages. Consequently in our present study we sent a field worker directly into the homes of a number of elderly people (some of them her personal acquaintances) in the vicinity of Bangor, Maine, to measure their metabolism in their own home environment. Since it is infinitely more difficult to study individuals over seventy years of age than those below this age we concentrated upon the higher ages.

The technician (Miss Adelaide Swasey) had been associated with the Nutrition Laboratory for a number of years and had been thoroughly

trained here in basal metabolism technique. The measurements were made with the field respiration apparatus², to which the subjects adjusted themselves readily. This apparatus employs a mouthpiece and noseclip and, from the psychological as well as the physiological standpoint, does not permit such normal measurements as the more modern helmet apparatus³ used in the two preceding old age studies.⁴ Nevertheless for this field study we felt it more important to take the apparatus to the bedside of each subject and measure the metabolism in the environment to which the subject was accustomed rather than to bring the subjects to a hospital where they could be studied with the helmet apparatus. In a hospital or institution the helmet apparatus has a definite advantage and cannot be recommended too strongly, but for field work the field respiration apparatus has proved most satisfactory. It is being employed continually in our racial studies and has proved sufficiently transportable and simple in manipulation to be used actually in the Australian bush.⁵

The subjects (five men and ten women) had not undergone a complete physical examination prior to the tests, which is an admitted defect. Physicians had been consulted occasionally by some of the subjects but it was impracticable except in a few instances to secure statements from medical men as to the physical assessment of all these subjects at the time of measurement.⁶ Rough estimates of the degree of vigor of these subjects made by our field worker and based upon general impressions received at the times of her contacts with them, are indicated in tables 1 and 3. The letter A indicates those most vigorous from the physical standpoint, and the letters B and C indicate those with correspondingly less physical vigor. None of the subjects were bedridden. All were active and able to be about, and came under the general classification of people "presumably in good health."

The observations were made in the morning with the subjects in the postabsorptive condition after a good night's sleep in their own beds. The bladder was emptied about 6:30 A.M.

From the Nutrition Laboratory of the Carnegie Institution of Washington, Boston, Massachusetts.

*Benedict, Francis G.—Director of the Nutrition Laboratory of the Carnegie Institution of Washington, Boston, Massachusetts, since 1907. For record and address of author see "This Week Issue" page 1148.

We wish to express our appreciation to Dr. C. A. Philbrick, Dr. W. B. Purinton, and Dr. L. F. Gregory of Bangor, Maine, who were especially cooperative in giving us information regarding their examinations on some of these subjects (see page 111).

Shortly after 7 A.M. the operator entered the bedroom, set up the apparatus, which is extremely simple, and measured the oxygen consumption for several periods. The length of each day's test was thus from thirty to about forty-five minutes. These measurements were repeated at intervals of a few days until the oxygen consumption had been determined on three different days, occasionally four days, within a period of three weeks. Observations were likewise taken of the pulse rate, the respiration rate, and the mouth temperature. The data were all secured between February 12 and June 28, 1934. In accordance with the difference in the time of year the temperature of the bedroom varied from an average of about 15° to a maximum of 22.5° C on one day. But since the subjects were measured while well protected with bed-clothing, under the same conditions under which they had slept comfortably all night, the environmental temperature played no rôle in these measurements.

DISCUSSION OF RESULTS

The oxygen values have been reduced to 0° C (dry) and 760 mm. The results from day to day with any given subject agreed remarkably well. Since each subject was in his or her personal, familiar environment, the measurement on the first day was almost invariably duplicated by the results on the second and third days. This was shown not only in the oxygen consumption but in the pulse rate and the respiration rate. If there had been undue excitement or agitation because of the novelty of the experience, one would have expected a higher metabolism on the first day of measurement. This confirms findings noted in other surveys, namely, that if the measurement is made carefully and quietly with an apparatus that is not too formidable, too disturbing, or too uncomfortable to the individual, the degree of apprehension may be reduced to such a point that the metabolism will not be significantly higher on the first day of a series of observations than on subsequent days.

Although the observations extended over a period of 4½ months (February to June), the

metabolism measurements did not tend to be higher in one month than in another and there is nothing in the data to indicate that difference in season over this rather short period had any effect upon the metabolism.

OBSERVATIONS ON ELDERLY MEN

Although this study deals in large part with the metabolism of elderly women, supplementing the earlier studies on aged women made by the Nutrition Laboratory^{6, 11}, opportunity was taken to measure five elderly men. The pertinent data secured with these men are given in table 1, the values for the several days of measurement being averaged for each subject. With regard to the intellectual and physical status of these men we have only general impressions. They were presumably in good health, but certainly none of them is to be compared in vigor, either intellectually or physically, with the three previously studied nonagenarians in whom the Nutrition Laboratory has been interested, namely, Sir James Crichton-Browne (studied by Dr C G L Wolf of Cambridge, England), Dr W W Keen of Philadelphia (studied by Dr W H Stoner), and Mr S W Lincoln*. The ages, weights, and heights of these three extraordinarily active and dynamic men at the time of measurement were as follows:

J C-B	89 yrs	58.8 kg	172 cm
W W K.	89 yrs	60.3 kg	154 cm
S W L	91 yrs	58.2 kg	172 cm

The great variability in the various methods of prediction available for elderly men is shown by the data in table 2, in which are reported the deviations of the actually measured heat production from the metabolism predicted by the standard methods of Harris and Benedict¹¹, Aub and Du Bois¹, and Dreyer⁹. In the upper part of the table are given the percentage de-

*An extensive report of the elaborate physiological examination of S W L has already been given in this journal.¹ In this report we failed to cite the interesting observations on elderly men by Mosler and Edelstein.¹² The citation is given here to make our survey of the literature on the metabolism in old age complete. Comparison of their results with our data, however, cannot be made satisfactorily inasmuch as their subjects were "hospital normals" and their basal metabolism data are presented only on the basis of percentage deviations from prediction standards and not on the basis of oxygen consumption or heat production.

TABLE 1
BASAL METABOLISM OF ELDERLY MEN—BANGOR SERIES

Subject	Age	Weight (Without Clothes)	Height	Pelldisi	Vigor	Pulse Rate	Respi- ration Rate	O. per Min	Heat Production per 24 Hours		
									Total	Per Kg	Per Sq M
	yrs	kg	cm					cc	cal	cal	cal
M	87	52.2	169	89	A	44	11	131	910	17.4	572
N	87	62.6	167	96	C	50	14	196	1362	21.8	796
O	82	78.6	176	99	D	36	12	243	1688	21.5	866
P	74	65.3	168	98	C	54	13	183	1271	19.5	730
Q	74	73.9	175	97	A	48	17	211	1466	19.8	776

vations for the three previously studied elderly men and in the lower part the deviations for the Bangor men. According to the Harris-Benedict predictions the greatest plus deviation

TABLE 2

COMPARISON OF STANDARD METHODS OF PREDICTING
THE BASAL METABOLISM AS APPLIED
TO ELDERLY MEN

Subject	Deviation of Measured Metabolism from Standard of		
	Harris and Benedict	Aub and Du Bois	Dreyer
	p ct	p ct	p ct
J C B	+17.6	-5.2	+16
W W K.	+26.2	+2.9	+11
S W L	-4.5	-24.0	-18.4
M	-1.9	-30.9	-26.7
V	+15.3	-3.9	+0.2
O	+14.5	+4.6	+10.0
P	-2.6	-14.3	-10.4
Q	+0.5	-8.9	-2.8

is with one of the three men in unusually good physical condition, W W K. and the greatest minus deviation is with one of the Bangor men, subject M. According to the Aub and Du Bois

OBSERVATIONS ON ELDERLY WOMEN

The results of the observations on the ten elderly women in the Bangor series are given in table 3. The body weights of these women differ greatly, from 37.9 to 81.0 kg. The heights are well within normal limits for women from sixty-nine to eighty-eight years of age. In general configuration these elderly women present no particular abnormalities. Absence of erect posture is to be expected in extreme old age, but for the most part these women were erect in carriage and only a few (subjects A, B, and H—and the man N) were obviously bent. The heights, as measured, of these few with bent posture might be expected to be too low and hence their pelvis (calculated from the body weight and the sitting height), which according to Pirquet²⁰ is the best index of state of nutrition, would be somewhat too large. However the pelvis even in these instances may be taken as real indices of the comparative states of nutrition. With only two women (B and D) do the pelvis suggest a slight degree of undernutrition. With subject C, on the contrary the pelvis suggests obesity.

The mouth temperatures of these subjects,

TABLE 3

BASAL METABOLISM OF ELDERLY WOMEN—BANGOR SERIES

Sub- ject	Age	Weight (Without Clothes)	Height	Pelvis	Vigor	Pulse Rate	Respi- ration Rate	O per Min	Heat Production		
									per 24 Hours Total	Per Kg	Per Sq M
	YRS	kg	cm					cc	cal	cal	cal
A	88	52.3	153	99	D	57	13	135	938	17.3	630
B	86	43.8	164	87	B	55	16	141	930	22.4	676
C	80	62.4	144	111	A	55	12	178	1223	19.6	806
D	79	37.9	153	88	B—	71	14	135	938	24.7	727
E	76	68.0	159	104	B+	50	15	182	1265	18.6	744
F	75	55.1	164	94	B	56	15	186	1292	23.4	813
G	73	62.3	162	99	B	63	11	165	1077	17.3	649
H	72	44.0	160	90	C	55	13	139	966	22.0	680
J	72	81.0	167	105	C	64	10	223	1549	19.1	815
K	69	49.7	156	95	B—	67	11	150	1042	21.0	709

predictions and likewise according to the Dreyer predictions the greatest plus deviation is with subject O and the greatest minus deviation with subject M. Analysis of the measurements made on the first three men listed in table 2 has already shown that the great differences in their metabolism cannot easily be explained. Consequently it is futile to expect with additional data on only five other elderly men to make any adequate analysis of the basal metabolism of elderly men. Hence the data in table 1 are presented chiefly to put on record the results of the carefully measured metabolism of these five Bangor men and pending accumulation of further data on elderly men* no detailed analysis of the data can be made.

*No further study of elderly men by the Nutrition Laboratory is planned.

both men and women, were well within normal limits. There is nothing in the data for pulse rate or respiration rate to challenge attention. The respiration rates are perhaps slightly lower than would be expected with a group of younger people. There are not sufficient data for other elderly women or men to justify a comparison of the two sexes. Indeed the variability in the basal metabolism of the few old men thus far studied is so great that such a comparison can be made only when larger numbers of elderly people of both sexes have been studied.

Total heat production referred to age and weight. In our analysis of the factors affecting the metabolism in old age we shall consider only the results obtained with women. Since the data for the ten women listed in table 3 are too few to justify group analysis we shall in

clude in our considerations the results of observations on elderly women previously reported from the Nutrition Laboratory^{6, 11} In figure 1 is plotted the total heat production per twenty-four hours referred to age for these women sixty-six years of age and over, the solid circles representing the data for women previously reported by Benedict and Meyer⁶, the hollow circles the data for three women within this age range from the Harris-Benedict group¹¹, and the crosses our present Bangor series. Since all three series of measurements were made by technicians thoroughly trained at the Nutrition Laboratory, the data are strictly comparable, and for any analysis of the major problems the three series may properly be treated as a whole rather than confining the discussion to the Bangor data. Earlier biometric analysis¹¹ of data

consideration the height, weight, and pelvis in an attempt to refer the metabolism measurements to the state of nutrition, that is, to the degree of overweight or underweight. But for the most part they have been unsuccessful. It is apparent, however, that the plotted points in figure 1 deviating most widely from the general trend represent individuals whose body weights differ most widely from the average.

Figure 1 is introduced, however, primarily to accentuate a point brought out in discussion of the earlier series of data on elderly women⁶, namely, that *the total twenty-four hour heat production of women seventy-eight years of age and over appears to be close to 1000 calories, irrespective of weight or age*. In the Bangor series (represented in figure 1 by crosses) three of the four women over seventy-eight years old (weighing 38, 44, and 53 kg, respectively) likewise have a total heat production approximating this level. With one of the Bangor subjects (C), eighty years old and weighing 62 kg, the total metabolism was 1223 calories. This value is not to be questioned, since it represents an average of four different experimental days of measurement, with close agreement on all four days. Of the elderly women studied by Matson and Hitchcock¹⁷ two at the age of eighty years (72 and 82 kg, i.e., overweight) had a total heat production higher than 1000 calories but two others, aged eighty-three and ninety-one years (57 and 52 kg), come in line with our general series. From an analysis of all the data available we can reiterate our earlier suggestion, namely, that the clinician may state with a high degree of probability that the normal woman over seventy-eight years of age, will, irrespective of body weight unless grossly overweight or underweight, have a total basal heat production per twenty-four hours of not far from 1000 calories. This value represents the heat production of the individual as a whole and must not be confused with the classic figure of 1000 calories accepted generally as representing the heat production of any and every warm blooded animal *per square meter of body surface* per twenty-four hours. Recent evidence accumulated at the Nutrition Laboratory strongly opposes the conception of approximate constancy in this latter value, but this evidence has no bearing upon this particular study.

Heat production per kilogram of body weight referred to age. One of the commonest methods of comparing the metabolism of individuals of different sizes has been to refer the metabolism to the body weight, on the assumption that the larger the animal the larger the heat production. Comparison of the metabolism of our three groups of elderly women on the basis of the heat production per kilogram of body weight referred to age shows an even greater dispersion

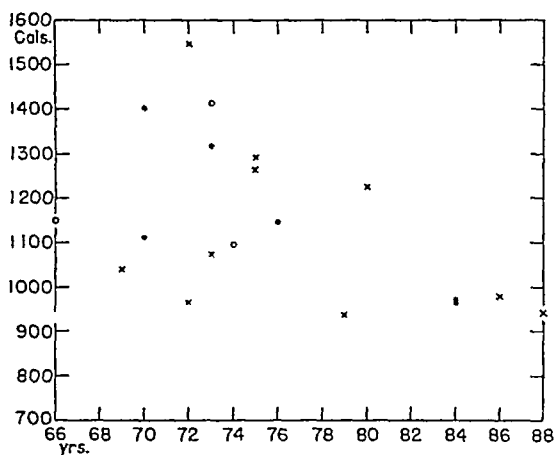


FIGURE 1 Total twenty four hour basal heat production of elderly Caucasian women referred to age

The solid dots represent the measurements reported by Benedict and Meyer the hollow circles those by Harris and Benedict, and the crosses the Bangor data

secured with younger human beings has brought out the fact that there is a regular decline in basal metabolism with advancing age. Although the scatter of the points in figure 1 is admittedly wide, it is apparent from these data also that at the more advanced ages the total heat production is for the most part lower than at the earlier ages. That this difference may not be uncritically assigned to the age factor alone, however, is brought out by comparison of the body weights, especially for those individuals showing the extremes in heat production. Thus the minimum total twenty-four hour heat production of 799 calories is that of a seventy-seven year old woman weighing but 31.8 kg, whereas the maximum heat production of 1549 calories is that of a seventy-two year old woman weighing 81 kg. Great differences in body weight therefore have a pronounced influence upon the metabolism even at these advanced ages. Innumerable comparisons of basal metabolism data on human beings have been made at the Nutrition Laboratory that take into con-

of points than is the case when the total metabolism itself is considered. In other words, there is apparently no correlation between the heat production per kilogram of body weight and the age. Whether this is because the differences in the weights of women of advanced age represent chiefly differences in amounts of adipose tissue, which is inert metabolically can be determined only after further experiments have been made.

Heat production per square meter of body surface referred to age. Another method commonly used in comparing the metabolism of individuals of different sizes is to express the heat production per square meter of body surface. The metabolism thus calculated has been referred to age in figure 2. The surface areas of these women were not actually measured but were computed from the measured heights and weights by use of the Du Bois height weight chart for body surface¹⁰. If, as has already been suggested, the measurements of the heights of some of these elderly women are too short, then the calculated surface areas in these instances are too small and hence the values for heat production per unit of surface area are too large. Consequently if a correction should be made in figure 2 for the probable error in the surface area, the result would be to lower somewhat all the plotted points. To what extent they would be lowered no one can predict, but at least they would be lowered somewhat rather than raised. The heat production per unit of surface area as shown in figure 2 varies from a minimum of 619 calories with an eighty-four year old woman to a maximum of 858 calories with a seventy-one year old woman. In an earlier discussion⁶ it was pointed out that the

calories (or less) the estimated vigor was A+, A, A, C, and E that is only one woman was what might be termed feeble. The data in figure 2 show a considerable scatter, notably at eighty-four years, but there is an unmistakable trend downward indicating that not only the total metabolism but likewise the metabolism per unit of surface area tends to decrease as age increases. Although the wide scatter of points makes any attempt to draw a curve on this chart debatable, nevertheless such a curve has been drawn to indicate the general trend, and subsequent use (see page 1119, second paragraph second column) will be made of this curve in a consideration of possible methods of predicting the basal metabolism of elderly women.

Heat production per kilogram of body weight referred to weight. The study of the effect of age on metabolism, with special reference to youth middle and old age can be approached from an entirely different angle. The heat production per kilogram of body weight referred to body weight has been found with animals of various sizes to be larger, the smaller the animal. With normal human beings it has likewise been shown that the smaller the individual,

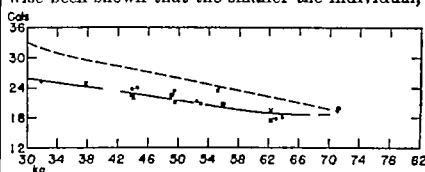


FIGURE 3. Basal heat production per kilogram of body weight per twenty-four hours referred to weight—Caucasian women.

The solid dots represent the measurements on elderly women reported by Benedict and Meyer; the hollow circles those reported by Harris and Benedict; and the crosses the Bangor data. The full line curve indicates the general trend of the metabolism of these elderly women (sixty-six to eighty-eight years old); the broken line curve the trend of the metabolism of younger women studied by the Nutrition Laboratory.

other things being equal the higher the heat production per kilogram of body weight. With our elderly women the data for basal twenty-four hour heat production per kilogram of body weight have been plotted with reference to body weight in figure 3, the solid dots, hollow circles, and crosses indicating the same groups as in figures 1 and 2. A smoothed curve (unbroken line) has been drawn through these plotted points to indicate approximately the general trend. The scatter of the plotted data is again very wide, but the general trend indicated by the curve is a downward slope with increasing weights up to 64 kg. From 64 kg and beyond the curve indicates a constant level of 18.5 calories per kilogram. The age factor as such does not appear in this method of plotting except that all the plotted points represent women sixty-six years of age and over (average age seventy-six years). The age factor, however,

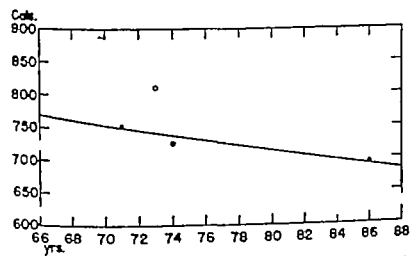


FIGURE 2. Basal heat production per square meter of body surface per twenty-four hours referred to age—Caucasian women.

The solid dots represent the measurements reported by Benedict and Meyer; the hollow circles those by Harris and Benedict; and the crosses the Bangor data.

low heat production found with a number of these women does not necessarily indicate that the subjects were abnormal. Thus with the five women in the earlier group having a low heat production per unit of surface area (650

may be studied by comparison of the slope and position of the curve drawn through the data for elderly women with the slope and position of the curve (indicated by the broken line in figure 3) derived from data secured by the Nutrition Laboratory on younger women^{5, 11} having the same range in weight but varying in age from twelve to sixty years and for the most part between twenty and thirty years

cess weight is fat. Since fat is inert metabolically, this excess weight automatically lowers the heat production per kilogram of body weight, irrespective of age.

PREDICTION OF THE METABOLISM IN OLD AGE

Several methods of predicting the basal metabolism of human beings of different ages and sexes are in common use, notably those of Aub

TABLE 4

COMPARISON OF DIFFERENT METHODS OF PREDICTING THE BASAL METABOLISM OF ELDERLY WOMEN

Subject	Age	Weight	Height	Total 24-Hour Heat Production (As Measured)	Deviation of Measured from Predicted Heat Production—					
					1930 Cals	Cals per Sq M Referred to Age	Cals per Kg Referred to Weight	Harris Benedict	Aub Du Bois	Dreyer
	yrs	kg	cm	cal	p ct	p ct	p ct	p ct	p ct	p ct
A	88	52.8	153	938	-10.8	-7.8	-14.4	-9.1	-18.0	-16.5
B	86	43.8	164	980	± 0.0	-2.0	-1.8	+0.5	-12.0	-4.5
XXIII	86	54.0	150	1026	-3.4	+0.4	-6.9	-2.0	-9.7	-9.9
XVIII	84	50.2	146	1015	-1.6	+3.2	-6.0	+0.3	-6.3	-7.9
XIX	84	43.9	158	1045	+6.5	+6.2	+4.4	+7.2	-3.5	+1.4
XX	84	44.5	144	1070	+8.5	+16.2	+5.7	+12.2	+5.6	+3.2
XXI	84	45.4	151	973	-2.0	+1.0	-4.9	-0.3	-8.2	-7.1
XXII	84	63.3	147	966	-15.0	-11.3	-18.7	-15.3	-19.4	-21.9
XVI	81	40.6	152	961	+0.6	+1.8	+0.4	+1.6	-5.9	-3.4
XVII	81	66.9	147	1035	-11.2	-8.9	-16.7	-12.8	-15.7	-19.0
C	80	62.4	144	1223	+8.3	+12.7	+4.3	+6.9	+1.6	-1.1
D	79	37.9	153	938	+0.5	+1.3	+2.1	+0.8	-8.2	-2.8
XV	79	69.2	151	1049	-11.4	-11.4	-17.8	-14.5	-19.7	-19.5
XIV	78	41.6	145	973	+1.0	+3.7	+0.9	+1.8	-5.5	-3.9
XIII	77	31.8	138	799	-9.6	-1.8	-1.2	-6.4	-9.9	-9.9
XII	76	49.4	152	1148	+12.0	+10.0	+8.4	+8.9	+1.4	+3.7
E	75	68.0	159	1265	+7.6	+1.4	± 0.0	+1.3	-6.1	-2.8
F	75	55.1	164	1292	+20.6	+10.8	+15.8	+13.8	+2.7	+10.3
X	74	63.0	149	1122	-1.1	-3.1	-5.3	-5.5	-9.8	-10.6
XI	74	44.7	159	936	-5.3	-11.4	-6.7	-9.2	-17.4	-11.5
51	74	48.9	164	1095	+7.2	-1.8	+4.7	+1.4	-8.5	-1.0
G	73	62.3	162	1077	-4.5	-12.5	-7.5	-10.9	-18.1	-13.8
IX	73	64.0	157	1318	+15.4	+7.7	+10.8	+8.4	+0.9	+4.1
95	73	71.1	159	1411	+9.0	+9.3	+6.5	+9.5	+2.4	+5.7
H	72	44.0	160	966	-1.6	-8.8	-3.5	-6.7	-14.1	-8.3
J	72	81.0	167	1549	+9.2	+9.2	+2.7	+10.5	+2.9	+8.5
V	71	72.0	159	1501	+15.0	+14.6	+11.8	+14.9	+8.3	+11.2
VI	71	63.7	153	1149	+0.8	-4.7	-3.7	-5.5	-9.9	-9.5
VII	71	66.6	168	1323	+13.8	+0.4	+7.0	+4.1	-5.1	+2.0
VIII	71	53.0	156	1096	+4.0	-3.1	± 0.0	-2.1	-8.4	-5.3
III	70	72.1	157	1401	+7.3	+7.6	+4.3	+7.1	+2.2	+3.6
IV	70	52.4	150	1112	+6.0	+1.2	+1.9	+0.5	-3.9	-3.6
K	69	49.7	156	1042	+1.4	-6.3	-2.3	-4.9	-13.1	-7.4
II	68	70.9	154	1359	+5.3	+5.0	+3.2	+4.6	-2.0	+1.0
I	66	50.3	159	931	-9.8	-19.2	-13.1	-16.9	-24.0	-18.3
99	66	55.9	162	1150	+6.8	-6.0	+3.0	-2.6	-11.4	-4.2
Average with regard to sign					+2.2	+0.1	-0.9	-0.2	-7.4	-4.7
Average without regard to sign					± 7.1	± 6.8	± 6.3	± 6.7	± 8.9	± 7.7

This broken-line curve for women of younger ages lies its entire length above the curve for elderly women. Neither curve has been extended beyond 70 kg, as there are not sufficient data beyond this weight. It is probable, however, that at 74 kg and beyond the heat production per unit of weight is the same, irrespective of whether the woman is young or old. Obviously a woman of 78 kg or more is overweight, and the predominant factor in the ex-

and Du Bois¹ and Harris and Benedict¹¹ and to a less extent Dreyer⁹. The application of these prediction methods in the case of elderly women is worth consideration, with the prime object of determining which of the methods will in all probability predict most closely the metabolism of an elderly woman whose age, weight, and height are known. In addition to these three commonly accepted methods of prediction three other methods applicable to women sixty-

six years of age and over (based upon critical analysis of our data on elderly women) are suggested. These are specifically (1) the use of an average value for the *total twenty four hour basal heat production* with corrections of this value for over and under weight, (2) the prediction of the heat production per square meter of body surface according to age by use of the curve shown in figure 2, and (3) the prediction of the heat production per kilogram of body weight according to weight by use of the curve for elderly women shown in figure 3. The pertinent data are shown in table 4, the Roman numerals representing the subjects studied by Benedict and Meyer, the Arabic numerals those reported by Harris and Benedict, and the capital letters those in the Bangor series.

Use of an average value for total heat production with corrections for over and under weight. As brought out in the discussion of figure 1 there is a tendency for the *total twenty four hour basal heat production* of women beyond seventy-eight years of age, irrespective of age within the age range here considered and irrespective in large part of body weight, to be not far from 1000 calories. This value may be considered as the irreducible overhead charge of living. When we consider the various factors that influence the magnitude of the total heat output of the day, such as muscular activity and vigor it would appear as if with these women showing a total heat production of about 1000 calories we are dealing with individuals who closely approximate a non productive or vegetative existence. These women have all accomplished their life's work, so to speak. Growth reproduction, and sex activity have ceased and they are living quietly under conditions calling for the lowest total heat production. These elderly women were not all of the same body weight, it is true, and it has already been pointed out in the discussion of figure 1 that those women having the highest total metabolism were for the most part overweight, whereas those having a very low total metabolism were for the most part those with low weights. Nevertheless there is a hint in these data that for every adult woman who has ceased all vigorous physical activity and who is not excessively over or under weight there is a basic cost of living of approximately 1000 calories. Although this suggestion is derived from data for women over seventy-eight years of age, there is no particular reason why it might not apply also to women under this age. As a matter of fact, there are among our elderly women eleven ranging in age from sixty-six to eighty-eight years, having an average body weight of 50 kg (range 44.7 to 54.0 kg), and an average height of 154 cm., whose total twenty four hour heat production averages 1030 calories. Accepting tenta-

tively a baseline of 1030 calories for elderly, 50-kg women, we have predicted the total twenty four hour heat production of our elderly women by arbitrarily increasing this value by 8 calories for each kilogram in weight in excess of 50 kg up to 70 kg and by 12.5 calories for each kilogram in excess of 70 kg for women of 70 kg and over, and have decreased it by 8 calories for each kilogram of weight below 50 kg. These arbitrary corrections for weight are based upon inspection of the magnitude of the values for the actually determined heat production of those women above and below the standard weight of 50 kg. The percentage deviations of the actually measured metabolism from the metabolism thus predicted are shown in the sixth column of table 4. The average deviation with regard to sign is $+2.2$ per cent and without regard to sign, ± 7.1 per cent. In such a consideration the age factor within this group does not appear. The age factor probably decreases in importance with advancing age after sixty years, as shown by the curves in figure 3.

The importance of this particular analysis is not that it furnishes a method of prediction so much as that it introduces the idea of a basic minimum requirement of energy for a woman of average size in advanced age, when vigorous physical activity has ceased and the existence is approaching a vegetative one, and suggests a means of computing the probable correction of this basic value for either over weight or under weight. We are supported in our judgment that such a conception is by no means illogical by the finding with eleven groups (twelve girls per group) of Girl Scouts* that the total twenty four hour heat production while the girls were asleep was 1250 calories irrespective of age between twelve and eighteen years and irrespective of weight between 39 and 58 kg. For comparison with data obtained under waking conditions this value should be increased ten per cent to correct for the influence of sleep, thus becoming 1375 calories. The Girl Scout data were not obtained, however, on a homogeneous group of individuals, since there was a range of six years in the ages and of 19 kg in the average weights. Hence the seeming constancy in the average metabolism of the Girl Scout groups is probably the resultant of two opposing factors age and growth. Young children have a high intense metabolism. This intensity in metabolism decreases as age advances. The decrease is rapid during adolescence and slower at the older ages, but nevertheless it is continual as age progresses. Opposing this decrease in metabolism with age is the increase with growth. The larger and heavier the organism, the larger the total heat production. During the growth or the increase

in weight characteristic of youth, therefore, there would normally be an increase in total metabolism. Hence in the case of the Girl Scouts the age effect (decrease in metabolism) is probably compensated by the growth effect (increase in metabolism). With the elderly women over seventy-eight years of age the factor of growth is absent, in spite of rather large weight differences (chiefly differences in fat), and the age factor as such at this advanced age plays a very small rôle.

Results of studies by other investigators on girls of essentially the same ages as our Girl Scouts show values for *total twenty-four hour heat production* approximating the corrected average of 1375 calories for Girl Scouts. Thus the similarity of results for the subjects of Bedale and MacLeod has already been commented upon in a publication from the Nutrition Laboratory.² McKay¹⁸ found variations due to over- or under-weight amounting to ± 8 per cent of the average heat production for the entire group, but the average for each age group differed little from the average for the entire group, namely, 1364 total calories per twenty-four hours. Of the student nurses measured by Remington and Culp²¹ forty-eight who were between seventeen and twenty years of age had an average total heat production of 1320 calories. Stark²² reports an average total heat production of close onto 1300 calories for 134 girls between seventeen and twenty years of age studied at the University of Wisconsin, although there was considerable variability in the individual values as would be expected due to abnormalities in weight and height. Coons⁸ finds with 101 women between seventeen and thirty-nine years of age an average total heat production somewhat lower than those values just cited, namely, 1245 calories, but here again the average values for the different age groups, at thirty to thirty-nine years as well as at seventeen years, are close to the general average, the range being only from 1217 to 1284 calories.

Approximate constancy in total heat production has also been noted with a group of twenty-seven Tamils in Madras, India.¹⁰ These women ranged in age from seventeen to thirty-one years (average age twenty-one years), in weight from 37.2 to 67.6 kg and in height from 145 to 166 cm. Notwithstanding the lack of homogeneity in this group the total heat production per twenty-four hours ranged with only five exceptions within ± 10 per cent of 1000 calories, averaging 1048 calories. That this low value cannot be ascribed to undernutrition is evident from their pelidisi which averaged 98 and in no instance was under 92, so that judged by Caucasian standards these women can be considered to have been in a good nutritive state. For fifty Japanese women, also in a good nutri-

tive state judged by their pelidisi, ranging in age from fifty-four to eighty-six years, in weight from 29.0 to 55.0 kg, and in height from 127 to 152 cm, Kisé and Oehr¹³ report values for the total twenty-four hour heat production (with eleven exceptions) likewise within ± 10 per cent of 1000 calories.

If we compare only the average total heat production of the young Caucasian girls and the elderly Caucasian women, leaving the Tamils and the Japanese women out of consideration for the moment because of the complication of the racial factor, we can say that the difference between the 1030 calories noted on the average with the elderly women and 1375 calories noted, for example, with the Girl Scouts is a definite index of the greater intensity of the metabolism of youth. When the factors of growth and age (which are so prominent from birth to about twenty-five years of age) are eliminated, as they are in old age, then there is a tendency for the total twenty-four hour metabolism to be constant at 1030 calories, except in those instances of great irregularities in body weight such as occur in the early and middle stages of old age. A fairly reasonable correction for these gross deviations in weight has already been suggested (see page 1117, last line, first column).

An ideal test of the degree of accuracy of this method of prediction, derived from our data on elderly Caucasian women, would be to apply it to another series of measurements on a different group of women. Fortunately among the Japanese women studied by Kisé there are thirty-six who are within the same age range as our elderly Caucasians, namely, from sixty-six to eighty-six years of age. These thirty-six women weighed on the average 37 kg, or 13 kg less than the 50-kg standard for elderly Caucasian women. Hence if the prediction standard of 1030 calories derived from analysis of our Caucasian data is applied to these Japanese women, it should be lowered 104 calories (13 times 8) to correct for the difference in weight. The average predicted total heat production of the Japanese on this basis would therefore be 926 calories. As a matter of fact, their actual total heat production averages 941 calories. If we predict the metabolism individually for each of the Japanese women sixty-six years old and over from the standard value of 1030 total calories, with a correction of -8 calories per kilogram for differences in weight under 50 kg, we find that on the average the measured metabolism deviates from the prediction by $+11$ per cent or (considering the deviations without regard to sign) ± 7.3 per cent. The measured metabolism of these Japanese women is thus close to the prediction standard derived from the Caucasian data.

Stress is laid upon this comparison not with the idea of presenting a superior method of prediction for the average elderly woman the metabolism of whom may be subsequently measured for comparison, but with the idea of emphasizing the conception that for women of the older ages above sixty-six years the energy requirements for the carrying on of physical activities when the body is approximating a vegetative state are at a constant, low level. In deed, it might be considered that the basic daily energy requirement of every woman is 1000 total calories, that at the older ages there will be an addition to or a subtraction from this basic need for gross over or under weight and that at younger ages there will be a further addition for the greater energy needs ascribable chiefly to the factors of age, growth, and the greater physical activity characteristic of youth.

This conception to some extent takes into account, in the case of the elderly women (in the suggested correction of the basic level for differences in weight from an average of 50 kg.) the proportion of fatty tissue present. It probably does not, however, attach sufficient importance to the factor of height or, since muscular tissue is roughly correlated with height, to the proportion of muscular tissue or body nitrogen. With elderly women, especially beyond seventy-eight years of life the variability in weight would be within a reasonable range and the excessive fatty tissue which is present in many women even up to seventy years of age would in the majority of instances have disappeared. Furthermore the deviation from an average height would not be great with women, but with men the deviations in height would play a larger rôle. On the assumption that nitrogenous tissue is proportional to muscular tissue we might argue that the larger the skeleton the more muscular tissue there would be in general, and consequently the more nitrogenous tissue. If the nitrogenous tissue is the metabolically active agent, then the metabolism would be larger the greater the amount of nitrogenous tissue. To be sure, the larger the skeleton the greater the opportunity to lay on inert fat, for the amount of adipose tissue that can be added to the skeleton is apparently unlimited. But the deposition of nitrogenous or muscular tissue in the case of the normal non-athletically trained human being is relatively limited. If we assume that the heat producing elements in the body are chiefly muscles and not fat and if we assume that the larger the skeleton the larger the muscles then probably we should disregard entirely weight as such for weight means a combination of skeleton muscles and fat of which two are presumably metabolically inert. Consequently in any further studies of the total metabolism we should be particularly on the

lookout for any possible correlation between the height of the individual and the total metabolism.

Ideally, for further analysis of the conception put forth in the above paragraphs, namely, that in general the basic total heat production at all ages is at a constant level, other groups of elderly women should be studied under conditions such that the factors of growth biological (including sexual) activity, and physical activity are known to be absent or to play only a small rôle. However, with just such groups we encounter more often the diseases from which human beings finally succumb, diseases which in early youth might not seriously affect the metabolism. If such diseases are present in a group of elderly people then the total metabolism will be above or below the basic level of 1000 calories according to the nature of the disease. Thus there may be cases of definitely reduced thyroid activity or pronounced atrophy of the muscles, which will give results below 1000 calories, demonstrating that the elderly woman is not normal. Values over 1000 calories could be explained, as we have already pointed out, by the higher energy needs of youth, of the reproductive stage of greater physical activity or by the increases ascribable to certain diseases.

Prediction of metabolism of elderly women from age and surface area, or from weight. Prediction of the metabolism on the basis of the heat production per square meter of body surface referred to age automatically takes into account body weight and height. The deviations of the measured heat production per square meter of body surface and that predicted for age on this same basis from the curve in figure 2 are shown in the seventh column of table 4. The measured metabolism is on the average within ± 6.8 per cent of the predicted heat production per unit of surface area. Prediction of the heat production of elderly women per kilogram of body weight referred to weight may be based upon the full line curve for women of sixty-six years and over shown in figure 3. By this method of prediction the deviation of measured from predicted metabolism averages for our thirty-six women ± 6.3 per cent. These two methods, based upon the curves in figures 2 and 3 are of about the same degree of accuracy (judged by comparison with the metabolism measurements from which they are derived) and predict the metabolism of these subjects more closely than does the use of the constant of 1030 calories with corrections for weights above and below 50 kg. The three prediction methods derived from Nutrition Laboratory data on elderly women must be looked upon however not as means of predicting the basal metabolism of this particular group of

women but simply as methods tentatively proposed for use with other groups of aged women. The true test of the accuracy or inaccuracy of these predictions can be made only by comparisons with measurements on other aged women.

Standard prediction methods already in use
The three prediction methods shown in the last three columns of table 4, namely, those of Harris and Benedict, Aub and Du Bois, and Dreyer, can be tested (as applied to old age) from this latter standpoint by comparison with the measurements secured on our elderly women, since they are based upon entirely different series of observations. The measured metabolism of our elderly women deviates from the Harris-Benedict prediction, on the average, by ± 6.7 per cent, from the Aub and Du Bois prediction by ± 8.9 per cent, and from the Dreyer prediction by ± 7.7 per cent. If the deviations are averaged with regard to sign, the averages show that the Aub and Du Bois standard is on the whole 7 per cent too high for our group of elderly women and the Dreyer standard 5 per cent too high. The Harris-Benedict standard, on the contrary, is on the whole much closer (-0.2 per cent) to the actually measured metabolism. The higher predictions by the Aub and Du Bois and by the Dreyer standards call to mind that Krogh¹⁴ has suggested that the Aub and Du Bois standards should be lowered by 4 per cent. The Harris-Benedict predictions for younger women have also been considered to be on the whole 5 per cent too high¹⁵. In the case of these elderly women, however, it is clear that, judged from the average deviations either with or without regard to sign, the Harris-Benedict predictions meet the test of accuracy better than do the Aub and Du Bois or the Dreyer predictions. This conclusion is in conformity with the earlier deduction of Benedict and Meyer⁶ based upon observations on twenty-three elderly women, and it is hardly to be expected that the picture would be materially changed by the inclusion of the relatively small Bangor group.

Deviations from prediction greater than ± 10 per cent
Another rough measure of the relative accuracy of several methods of prediction is obtained by comparison of the number of metabolism measurements within the group that deviate by more than ± 10.0 per cent from the prediction. For the time being giving all six methods of prediction shown in table 4 equal weight that is, not separating those based upon data obtained on younger women from those based upon our elderly women, we find that with our group of elderly women the least number of deviations greater than ± 10.0 per cent occurs with the prediction on the basis of the calories per kilogram of body weight referred to weight, namely 8 as compared with 9, 10, and 11 by the other methods. If the limit of variability is

extended from ± 10.0 to ± 12.5 per cent, then the prediction on the basis of calories per square meter of body surface referred to age shows the least number of deviations beyond this limit, 4 as compared with 5 to 9 by the other methods.

Heat production per square meter of body surface predicted for age
Comparison of the average percentage deviations shown in table 4 and consideration of the number of deviations greater than ± 10 per cent in the case of the several prediction methods do not indicate any marked difference in degree of accuracy of prediction between the prediction from body weight and that from age and body surface. Since the Aub and Du Bois prediction method, however, is so often used in the clinic and according to this method the metabolism is expressed in terms of calories per square meter of body surface per hour, we have as a matter of convenience tabulated in table 5 the values expressed on this same basis for the heat production of women for each year of age between sixty-six and eighty-eight years, predicted from the curve for elderly women in figure 2.

TABLE 5 BASAL HEAT PRODUCTION OF ELDERLY CAUCASIAN WOMEN PER SQUARE METER OF BODY SURFACE PER HOUR PREDICTED FOR AGE					
Age Yrs	Calo- ries	Age Yrs	Calo- ries	Age Yrs	Calo- ries
		70	31.4	80	29.8
		71	31.3	81	29.6
		72	31.1	82	29.4
		73	30.9	83	29.3
		74	30.8	84	29.1
		75	30.6	85	28.9
66	32.0	76	30.4	86	28.8
67	31.9	77	30.3	87	28.6
68	31.8	78	30.1	88	28.5
69	31.6	79	29.9	—	—

PHYSICAL AND MENTAL VIGOR AND
METABOLIC LEVEL
Four of our subjects (Nos XVII, F, V, and I) show deviations of measured from predicted metabolism greater than ± 10 per cent by five out of the six different prediction methods considered in table 4, and two subjects (Nos XXII and XV) show deviations of this magnitude by all six methods. With each of these subjects the deviations from the different prediction standards are all in the minus direction or all in the plus direction. In an endeavor to explain these wide deviations from the general average in these few cases, we present what information has been secured regarding the physical and mental condition of our various subjects.*

*We are particularly indebted to Dr. Lyman H. Hoyt, physician in charge at the Massachusetts Home in Boston, who gave of his time to secure blood pressure records on some of these subjects in 1935 for comparison with the measurements made by him in 1932. We also wish to express our appreciation to Mrs. Ruth E. Lindon, hostess at the Massachusetts Home, for her information regarding the physical condition in 1935 of some of these subjects.

Of those whose metabolism measurements were reported in 1932, the following have since died: Subject II, 69 yrs (shock), subject X, 76 yrs (operation on kidneys), subject XI, 75 yrs (fractured hip and pneumonia), subject XIV, 80 yrs (pneumonia), subject XVIII 86 yrs (pneumonia), subject XX, 85 yrs (cause ?), subject XXII, 86 yrs (heart trouble). Of those who are still living at the Massachusetts Home in Boston, subject III at present has a chronic heart condition and edema of the ankles. Subject IV has developed a mild form of diabetes and has hypertension symptoms. Subject VI is in normal condition for her age. Subject VII has a bad heart, arteriosclerosis, and edema. Subject VIII is troubled with coronary thrombosis. Subject IX has diabetes but it is under control. Subject XV has become much feeblery physically and mentally. Subject XVI is now bedridden. She and subject XXI are in poor mental condition. Subject XXIII has had pneumonia twice and is now bedridden, due to senile paralysis agitans.

In a few instances the blood pressures were recorded for comparison with those recorded in 1932. This comparison is as follows:

Subject	1932		1935	
	Systolic	Diastolic	Systolic	Diastolic
VIII	210 mm	110 mm	180 mm	110 mm
IX	170	85	180	90
XII	182	82	160	90
XVI	180	130	210	80
XVII	160	80	160	90
XIX	200	70	155	90
XXI	180	120	154	82
XXIII	142	84	110	40

Of the Bangor women, subject A has been troubled with gall stones for a number of years, but the trouble has not been serious enough to make an operation necessary. Both she and subject B have had only minor ailments (such as slight colds and sore throats) since 1932 and for their ages are well and strong. Their inheritance is good, with no great sickness or chronic diseases in the family. Subject C has had no family physician and is almost never ill. Subject D is poorly nourished, her eyes and arteries are senile, her hearing is faulty, her heart functions well, her digestion is poor but she has no particular organic disease. Subject E has no family physician, is active around the house, and walks considerably. Subject F has consulted no physician for many years. Subject H is lame as the result of a broken hip and is troubled with rheumatism.

The attempt to explain the widely aberrant values of these several subjects from examination of what little information is available regarding their personal histories is only in part successful. It is regrettable that later metabolism measurements could not be secured. No

clear-cut picture is shown of a correlation between muscular and mental vigor and metabolic level, except that in a few instances where the subjects have subsequently become bedridden it would appear as if the previously measured low metabolism might be explained by a tendency for ultimate muscular atrophy (possibly a cachexia). Realizing that with the majority of elderly people there is a tendency for the weight to decrease, even allowing for the naturally increasing weight in middle age, we believe that it would have been helpful to have had a record of the maximum previous weights of these subjects. It may be that the musculature had been adjusted to handling a larger mass of tissue and that some of the deviations noted from the various prediction methods may have been accounted for by the after-effect of the previous accumulation of body weight.

In view of the frailties of extreme age it would be illogical to assume that every one of our thirty six elderly women was normal physiologically. However, we believe that from the standpoint of the emotional factor every subject was studied under ideal conditions and that the metabolism as measured was the true basal metabolism. It is practically impossible to obtain a metabolism measurement that is below basal except in the case of illness. It is easy to secure a measurement that is above basal, and it might well be that one or two in an old age group, if studied further, would show a metabolic level other than that of the first measurements. The apparently aberrant metabolism data noted with some of our thirty six elderly women must therefore be considered not from the standpoint of deviations from physiological perfection but rather as individual differences that may normally be expected to exist in measurements on any group of elderly people. Since there is this inescapable physiological variability with human beings, it would have been advantageous if we could have measured a much larger group of elderly women. As time goes on one can look for additional data on the metabolism in old age under which conditions the trends of the curves in figures 2 and 3 and the prediction formulas will undoubtedly be changed somewhat. It is believed, however, that there is a sufficient number of subjects in our three series listed in table 4 for the measurements to afford a reasonable basis for predicting the probable basal metabolism of women sixty-six years of age and over, who are presumably in good health. These standards may not however be used for predicting the metabolism of younger women.

SUMMARY

Supplementing earlier series of observations on elderly women and on three exceptionally vigorous elderly men the Nutrition Laboratory

has measured the basal metabolism of five men and ten women between sixty-nine and eighty-eight years of age. The data for men are not sufficient to justify extensive analysis. The data for the several groups of elderly women, totaling thirty-six individuals, have been analyzed from the standpoint of the factors affecting metabolism in old age and the use of prediction standards in old age. The total metabolism and the metabolism per unit of surface area of elderly women tend to decrease as age increases, but marked over- or under-weight causes pronounced deviations from the general trend. The heat production per kilogram of weight decreases with increasing weights up to 64 kg, but beyond this weight the metabolism per unit of weight remains at a constant level. Younger women, on the average, have a higher heat production per unit of weight referred to weight than do elderly women up to about 74 kg, beyond which weight the metabolism per kilogram is probably the same, irrespective of age.

The measured heat production of these thirty-six women is on the average 7 and 5 per cent, respectively, below the Aub and Du Bois and the Dreyer prediction standards and 0.2 per cent below the Harris-Benedict standard. Based upon the measurements on these thirty-six elderly women, a tentative method is proposed for predicting the basal metabolism of women between sixty-six and eighty-eight years of age on the basis of the heat production per square meter of body surface per hour.

The conception is put forth that the total twenty-four hour heat production, under basal conditions, of all normal elderly women above sixty-six years of age, whose vigorous physical activities have ceased, is at a constant, low level of about 1000 calories. It is furthermore suggested that the basic daily energy requirement

of every normal woman may be 1030 total calories, that at the older ages this basic requirement will be increased or decreased by gross over- or under-weight, and that at younger ages it will be increased for the greater energy needs of youth, growth, reproductive activity, and greater physical activity.

REFERENCES

- 1 Aub J C and Du Bois E F Arch Int Med 19 831 1917
- 2 Benedict F G Proc. Am Philos Soc. 63 25 1924
- 3 Benedict F G Boston M & S J 197 1161 1927
Chinese J Physiol Report Series No 1 39 1928
Abderhalden's Handb d biolog Arbeitsmethoden Abt IV, Teil 13 1 1929
- 4 Benedict F G New Eng J Med 203 150 1930
Abderhalden's Handb d biolog Arbeitsmethoden Abt IV, Teil 13 465 1933
- 5 Benedict F G., and Hendry M F Boston M & S J 184 217 257 282 297 and 329 1921
Benedict F G Hendry M F and Baker M L Proc Nat Acad Sci 7 10 1921
Benedict F G Boston M & S J 188 127 1923
- 6 Benedict F G and Meyer M H Proc. Am Philos Soc 71 143 1931
- 7 Benedict F G and Root, H F New Eng J Med 211 521 1934
Ibid Proc Nat Acad Sci 20 389 1924
- 8 Coons C M Am J Physiol 98 692 1931
- 9 Dreyer G Lancet Part 2 290 1920
- 10 Du Bois D and Du Bois E F Arch Int Med 17 865 1916
- 11 Harris J A and Benedict F G Carnegie Inst Wash Pub No 279 1919
- 12 Hicks C S Matters R F and Mitchell M L Australian J Exper Biol and M. Sc 8 69 1931
Hicks C S and Matters R F Australian J Exper Biol and M. Sc 11 177 1933
Hicks C S Moore H O and Eldridge, E Australian J Exper Biol and M. Sc 12 79 1934
- 13 Kise Y and Oehl T J Lab & Clin Med 19 1073 1934
Kefauver 12 91 1932
- 14 Krogh A Boston M & S J 189 313 1923
- 15 MacLeod G Crofts E E and Benedict F G Am J Physiol 73 449 1925
Benedict F G Am J Physiol 85 607 1928
- 16 Mason E D and Benedict F G Indian J Med Research 19 75 1931
- 17 Matson J R and Hitchcock, F A Am J Physiol 110 329 1934
- 18 McKay H. Ohio Agricul Exper Station Wooster Ohio Bull. 465 1930
- 19 Mosler E and Edelstein M Ztschr f d ges phys Therap 35 172 1928
- 20 Pirquet, C An outline of the Pirquet system of nutrition Phila and London 1922
- 21 Remington R E and Culp F B Arch Int Med 47 366 1931
- 22 Stark M E Trans Wisc Acad Sci Arts and Letters 27 51 1932
J Nutrition 6 11 1933

REPORT OF A CASE OF PRIMARY PNEUMOCOCCUS ARTHRITIS*

BY MAXWELL H BLOOMBERG, M D †

THIS is a report of a case of primary pneumococcus arthritis which recently came to my attention. There are available in the literature reports of several similar adult cases which followed pneumonia, however, cases in which the origin was unknown are rarely mentioned. Plisson and Brousse¹ collected 185 cases of pneumococcus arthritis but in only twenty-six cases was the arthritis primary, of these fourteen were in children. Froelich² reported seventeen cases of pneumococcus arthritis, all following pneumonia. Fagge³ presented one definite and

two doubtful cases from the medical and surgical services of Guy's hospital, which occurred between 1918 and 1927. Hipsley⁴ reported a case of primary pneumococcus arthritis in a child of ten years, involving both hips, the right elbow, and the left knee. The left hip showed destruction similar to that caused by Perthes' disease. Froelich reports having seen one case which showed complete destruction of the heads of both femora in an infant. Gubb⁵ described a similar case of pneumococcus arthritis in a twenty-five year old man, without destruction of any joints. Bulkley⁶, in a report of a series of 173 cases gathered from the literature, stated that 70 per cent were associated with pneu-

From the Orthopedic Service of the Carney Hospital.

†Bloomberg, Maxwell H.—Orthopedic Surgeon to Out Patient Department, Beth Israel Hospital. For record and address of author see "This Week's Issue" page 1146.

monia. These occurred most often in children. Satisfactory evidence of the pneumococcus origin of arthritis requires the isolation of the organism in question from the joint, and positive identification. In the case here reported the organism was identified in the fluid removed from the first metatarsophalangeal joint of the left foot.

CASE REPORT

Chief Complaint A twenty-seven year old colored female entered the Carney Hospital on March 1 1934 complaining of pain and swelling of the first metatarsophalangeal joint of the left foot. The past history and family history were negative.

Present Illness One week before admission she experienced some stiffness of the first metatarsophalangeal joint of the left foot. Two days later there appeared a swelling over this joint associated with a severe throbbing pain. She had a slight headache and felt nauseated but did not vomit. At no time was her temperature over 100. Palliative treatment was given by her physician but the progression of symptoms necessitated her removal to a hospital.

Physical Examination A well-developed and nourished colored female complaining of severe pain and swelling of the left big toe. The first metatarsophalangeal joint was hot, swollen and exquisitely tender. On March 2 1934 this joint was incised. About five cc. of a thin yellowish flaky fluid containing much fibrin was evacuated. The joint space was washed thoroughly with a 1:2000 solution of bichloride of mercury. The joint was closed.

A report from the Boston City Hospital Pathology Department, indicated that the fluid contained a pure culture of pneumococci Group IV Type 14 according to the Neufeld method.

On March 5 1934 all symptoms having subsided she was discharged.

Second admission On April 31 1934 she was admitted for pain and swelling of the left ankle. She had been well until four days before admission when she again experienced pain and swelling of her foot.

Physical examination disclosed a fluctuant area beneath the external malleolus of the left foot. There was also a fluctuant area over the bases of the fourth and fifth metatarsal joints of the same foot. All other joints were negative. Fifteen cc. of fluid, closely resembling that previously obtained from the metatarsophalangeal joint, was aspirated

from below the external malleolus. On April 23 there appeared a similar swelling of the left wrist and right knee joints. The temperature from the time of the second admission to her discharge on May 5 1934 was never over 100. The joints gradually subsided with immobilization.

Laboratory Examination Urine examinations were negative. On the first admission the blood examination showed 85 per cent hemoglobin (Dare) polymorphonuclear neutrophils 77 per cent lymphocytes 18 per cent, eosinophiles 5 per cent. On April 21 1934 the hemoglobin was 55 per cent, erythrocytes 2,180,000 polymorphonuclear neutrophils 79 per cent. On April 30 1934 the hemoglobin was 60 per cent, erythrocytes 3,990,000 polymorphonuclear neutrophils 77- small lymphocytes 21 per cent, eosinophiles 1 per cent. Blood cultures were negative on several occasions. Wassermann negative. There was no growth obtained from the fluid of the ankle. The x-rays were negative for bone pathology.

Treatment On April 30 1934 vaccine treatment was instituted, using a vaccine composed of three thousand million pneumococci and one thousand million streptococci to the cubic centimeter. An initial dose of .5 cc. subcutaneously was given which was increased to 1 cc. daily twenty-two injections in all were given.

There is definite improvement of the joints involved inasmuch as the motion is not limited and the pain has almost completely subsided. It is, however too early to draw any conclusions. The prognosis in these cases is usually good.

CONCLUSIONS

(1) A review of the literature indicates that few cases of primary pneumococcus arthritis have been reported.

(2) One case is herein reported.

(3) The prognosis appears to be favorable after drainage and lavage with 1:2000 solution of bichloride of mercury.

REFERENCES

1. Pilson and Broume: Arthritis purulente primitive à pneumocoques du groupe chez l'adulte. *Lyon Chir.* 17: 708 (Dec.) 1929.
2. Froelich: Pneumococcus arthritis in infants. Abstract *J. A. M. A.* 22: 923 (Sept. 19) 1925.
3. Fagan, C. H.: Pneumococcal arthritis. *Guy's Hosp. Rep.* 22: 414 (Oct.) 1923.
4. Hipsley, P. L.: Pneumococcal arthritis. *St. J. Australia* 1: 547 (May 30) 1916.
5. Gubb, A. S.: Pneumococcal polyarthritis. *Brit. M. J.* 2: 45 (Sept. 13) 1914.
6. Bulkley, K.: Pneumococcal arthritis. *Am. J. Surg.* 59: 71 1914.

THE SOCIAL TRENDS UNDERLYING HEALTH AND HOSPITAL INSURANCE*

BY STEWART R. ROBERTS, M.D.†

IDEAS are the prophets and forerunners of progress. Facts are the bricks that make the solid foundation. Ideas plan the house and arrange the rooms. New ideas may rearrange the rooms in the old house, or add to it or demolish part of it. At variable intervals certain epochs

*Read before the Ninth Annual Session, Institute of Public Affairs, University of Georgia, Athens, Ga., Thursday, January 24, 1936.

†Roberts, Stewart R.—Professor in Clinical Medicine, Emory University. For record and address of a thoracic "This Week's Issue," page 1145.

give birth to a whole crop of new ideas. The house may be torn down and a new house built on the old foundation with a new plan and emphasis. In the home of Washington's new nation slavery had a large room and the right to secede a very cozy and congenial den. For seventy-six years a new idea ran the gauntlet of truth and public opinion, nay of morality and efficiency also. It held that the slave had a right to be free and that the nation could not con-

tinue half slave and half free After seventy-six years of words and four years of bullets this last idea succeeded the old idea of slavery and secession And with it the house of the Republic was changed These two ideas struggled with each other for four score years, or two full generations of that day

My great-grandfather's idea of speed and transportation was that of the ox and the horse To him a fast horse was fast speed The steam engine and the train came and his ideas of speed withered and died The train made a new appeal to the human mind and new ideas of speed became current Then gradually the tracks were made better tracks and the trains larger and faster Still newer ideas of speed succeeded old ones The expensive, uncertain automobile on old roads came next, then better and faster automobiles on better roads, and now the 80-mile small car on concrete roads New ideas planned better products and better products revised or killed old ideas And then the improvement of the airplane, flying safely and comfortably at above 150 miles per hour, made a still more revolutionary appeal to our minds Old ideas died because better ideas became true and active It holds for all civilization, whether it be Church or State, machines or farming or business, profession or society Socrates talked to Plato and Jesus to Peter face to face The Indians talked with distant moving objects and smoke, Morse with his telegraph wire, Bell with his telephone wire, Marconi with his wireless, and television now sends pictures Talk has grown from face to face to next to nothing though heard around the world

The daughter of one generation is the mother of the next The ideas of one generation become the progress of the next One cannot get away from ideas that live and the elusive, vast, unseen, moving force that applies them and that we name progress An idea is measured in terms of its efficiency The larger idea has the larger service to the race Facts are the foundation, ideas the plan, progress the application Whether one be a conservative even to the last by whom the new is tried, or a progressive, or even a pioneer who makes the new, true ideas have birth, grow up and reach maturity, then prime, then old age and wither and die They are succeeded by another generation of ideas unless an idea and its relations and applications are so valuable that they become a part of the situation under which we live and add to the law and the morals of the nation

Love is the ocean of the emotions, the true music of mankind, but a great idea that stimulates a great service, an idea whose time and application have come, is the motivation of a generation and the dynamo of its spiritual currents It lights all life, lifts the burdens of

the poor and lowly, and builds a highway over which the benefits of science and education may flow to those who need them Miss Perkins wisely says that the great need of the day is to construct a new bridge that can carry the accumulated gifts of science to those on the poorer side of the economic ditch If you have been looking for the prophet of a new time, study Miss Perkins In terms of human service she has caught the vision and is one of the world's greatest living women Only one who has suffered much and accepted much and the quality of whose spirit is in tune with the Infinite, could have recognized her and appointed her to her high service

Even though an idea brings new means, methods and details, it remains true, as the President wrote, that "its objectives are as permanent as human nature" Such an idea may be measured not only by its efficiency, but in other ways One asks if its application is right or wrong Lincoln called it "the eternal question of right and wrong" One would seek for it the approval of wisdom, prudence, good judgment, common sense, sound economics and harmony with the basic ways of human nature And one would wish to know,—may far more than know, would wish to feel that this idea keeps to the path of human progress Though an idea be right and though it be wise, if it meet not the last condition, it may omit from consideration any relations to society and to the good of the people as a whole Social rights are taking a new importance and the old doctrine of human brotherhood is coming into its own

The panic has irrigated our social concepts and made our social relations grow and assume a greater importance Social relations are mutual relations In the Declaration of Independence Jefferson wrote "of certain inalienable rights," that "among these are Life, Liberty and the pursuit of Happiness" "Among these"—but he mentioned but three of them We are beginning to see others Many of us believe that economic security for the individual and health security for the individual are also inalienable rights There is not much liberty without some economic safety and not much happiness without some health, and not much life without both Healthy people make a healthy society and a healthy society consists of healthy people All this means that we are beginning to think practically with reference to each other in terms of economic safety and health safety But one says who is doing all this and what does all this mean? Whence all this change and who caused these new points of view? What do you intend to let these people, whom you are trying to help, do for themselves? Why not let things stay as they were and let us alone to work out our several ways and destinies? The same cry

met Jesus and the same cry meets every epoch of noble change on the path of human progress. "Let us alone, what have we to do with thee, thou Jesus of Nazareth? Art thou come to destroy us?"

One says the government is doing all this, and that it will ruin us. Another accuses the politicians, another capital, another labor, another drink, another taxes, another apathy, another laziness, another communism, another the lack of character and religion. But it is not one or all of these. It came from beneath them all. It is a great time in human history. It is the great change. It is a great force and no man can tell whence it cometh or whither it goeth. Formerly in settled satisfaction we lived from year to year. Then we tried to live from month to month and now from day to day. No man knows what a day will bring. We are swimming with the stream and are up to our necks with recent floods. We have lifted anchor and are sailing as best we may for a new day. The people call it the "New Deal." It had to have a name. What are its essentials? Is it merely a variation in many emphases? Or, are we going back to simple living, to a belief in the overwhelming importance of the personality and the rights of the individual and to finer qualities of the spirit? President Graham describes the causes as follows:

"The steam, gas, electric, and oil power engines together with the world war the world moral confusion, the world depression and the European revolutions, have accumulated such deep moving forces as to be in focus of a great historic transition with swift repercussions around the earth. From this earth much security has gone. Earlier historic transitions have been more regional in their processes and slow in their world influence. The transitions and adjustments were processes of generations and slow centuries. Social drift did not then, as now, mean swift and wide social tragedy. The vast and dynamic mechanical framework now flung around the earth gathers up wars, revolutions, depressions and unemployment anywhere and implicates men everywhere."

To understand the great changes occurring in the economic and social aspects of medical care one must at least note the five great ideas that apparently underlie the present social transition. These ideas seem to constitute the impetus of this new epoch. A little comment upon each is justifiable.

(1) There is the idea of change. Things are not going to be as they were. All human relations are in question and have come to some degree of change. Whatever is in these relations is subject to change. The world is now truly a stage and is shifting its scenes rapidly. Every

man and every calling sees it, feels it, and wonders. The banker meets new rules and limitations, the steel company new alloys and problems, utilities new interferences, business shifts its codes and competition, the professions turn to changing ethics and economic conditions, education to more emphasis on personality and current demands for preparation, labor seeks employment and with employment grows restless, and even the farmer shifts his crops in favor of the universal good. In the twinkling of an eye the change has come. It is a forward thing, full of ultimate good. We may well go on with a great faith.

(2) There is the idea that we are shifting the emphasis from war to peace. We are tired of war. Next to love, it has been the major historical emotion of mankind. No wonder we are tired of it. Possibly there is no excuse for it except to repel invasion or to put down inurrection. It is more than hell. It is hell, and the spilling of the warm red blood of youth and destruction and bankruptcy. It is the end of safety and the negation of peace. This nation will never really prepare for war in time of peace because it is against war. We are a peaceful people. And then war is expensive. In ordinary times three fourths of the national income goes to the current military establishment and for past wars. In 1931 "the entire cotton and wheat crops did not bring to the farmers of the United States half as much money as was needed to meet the costs of war in a year of peace." (E. H. Johnson.) We really do want to take the profits out of war. And then war is such a futile effort. In the last one we tried to make the world safe for democracy and instead we seem rather to have made it safe for demagogues. Furthermore, we need war money for social needs. The stream of the billions is to be diverted from bullets to folks.

(3) There is the idea that we are shifting the emphasis from isolated accumulations of great wealth among the few to greater economic security for the many. Great abilities mean great rewards. Such abilities should continue to receive proportional rewards. But just as there is a limit to poverty below which one cannot go lest he starve so there is a limit to the large income above which one cannot go lest, in his surplus, many be deprived of actual necessities. The economic change is leveling downwards. And then we are nearly all in debt. If we pay our debts, we shall be poor for a long time. All classes have lost and suffered the world over. It is of increasing importance that the security of the poor be increased in some fair way that shall distribute the burden. We have learned at last that a budget is a thing to be balanced. We shall continue to expect the poor man and all men to work hard to do the day's work for fair pay.

(4) There is the idea that life consists of something more than the abundance of tangible things that a man owns. It seems that there is one bread for the body and another bread for the spirit. The young man who asked what he should do to be saved was told to keep the Commandments. He had kept them but we in America have not. He was told to sell his possessions and give to the economically insecure. He hung his head and would not. But most of us are in the same condition that he would have been had he sold out and given away. Most people have lost and lost heavily. We are relatively poor. The things of the spirit are calling themselves to our attention and stirrings of greatness are within us. A kind of spiritual peace is stealing over our personalities and we are learning to be content. We are slowly learning that to be poor, to be great and to be content is to have great possessions of the spirit. This adds to our personal character, which is the foundation of everything. This adds to our moral responsibility, which is the value of everything. This brings us face to face with the social needs of our fellow countrymen, our neighbors and our friends. And at the last we come to feel that each of us has a personal responsibility to make these social needs practical and available. Social needs are knocking at our doors and the days of the social miser are gone.

(5) There is the idea that science has shown its ability but that now it should show its availability to all the people. It has been strong in its triumphs. It must now be worthy in its service. We are proud of it. It has made the things that make up modern life. It is the miracle of modern times. There were only three inventions in history worthy the name up to 1765. There were the printing block, the flying shuttle and the spinning jenny. In that year James Watt invented the steam engine and the machine age started. Steam, electricity, chemistry and manufacturing have remade the world. Their comforts, benefits, labor-saving ways and conveniences are on the way to the full quota of mankind. Under the wing of science, medicine has warmed and quickened into an art so capable of necessary service that were its benefits available to all men in equal degree, perhaps it would be accorded first choice among the blessings of the day. One would like to see an electric wire and its many serviceable offsprings, a refrigerator and a bathtub in every home. But were it left to the average parents, they would rather be assured of ever ready and adequate medical care. The father said, "I can work and sleep and be well until I put my hand on the baby's face and feel it burn." How to get adequate available, medical care to all the people is certainly among the first of the chief social needs of the day.

What is this service that we call medicine? What kind of power is this vague beneficence we feel to be resident in every well-trained physician and public health official? Medicine is a three-in-one union of science, which is a huge system of classified and accumulated knowledge, daily increase, an art, whose essence is action in terms of symptoms, signs, treatment and prognosis, and a public function, whose essence is service to all the people in terms of health and the prevention of disease. Its science is the knowledge, its art the practice, and its function the prevention of disease. Its colleges teach the science and show the art, its physicians largely devote themselves to curing or comforting the sick, and its public health officials to preventing and controlling disease. The profession has assumed two facts in its relations with the public. (1) That those who are able to pay a fee for medical service should pay, with due consideration to ability to pay, to the value of the services rendered, to the results attained, and to the time and skill of the physician. (2) That those who are unable to pay should nevertheless be treated free. The public has assumed, in turn, two facts in its relation with the medical profession. (1) That any sick person anywhere at any time is entitled to adequate medical care. (2) If the person can pay for his medical service he should do so, but if he cannot pay, the physician himself should assume the burden of free care and by so doing relieve both the individual and the community of further obligation. It has been both the obligation and the education of the physician to every individual, without consideration of the economic condition of the patient. "Pay if you can—free if you cannot" has been the silent slogan of a silent profession.

These relations developed in an older day when communities were rural and very small, when the neighbors were known and want was scarce because the farm was the home. Medical service was cheap. The physician had a brief and inexpensive medical education and usually no hospital experience, his overhead consisted mainly of a horse and his keep, his saddlebags and their contained medicines, and a very occasional new book and medical journal. He treated the clergy free because the only clergyman he knew was apt to be his pastor. He treated his professional brethren free because there were so few of them and it was both his duty and his honor. He was king in his own right by virtue of his character and his service, and king of pain and confidence as well. He was nurse and keeper of the nightly vigil and friend of every man. His patients called him "Doc" and his God called him home when he died.

In the early days of Cincinnati, a call was

twenty-five cents though the medicine was usually fifty cents to a dollar. The fees in Cincinnati now are many, many times more. The fees of the best physicians there and elsewhere are so high that the poor people cannot pay them at all, though these same physicians give their services free in the city hospitals. But what strides medicine has made and what a story it can tell between 1820 and 1935! The doctor in 1820 had neither stethoscope, thermometer nor hypodermic needle. There were no anesthetics, a very rare hospital, no knowledge of the cause of disease, no bacteria, no sera, no laboratory, no x ray, no radium, nothing but observation of the sick, empirical remedies largely and prayer. Vaccination against smallpox was the only scientific preventive measure known. The first case of appendicitis described was by Daniel Drake in Cincinnati in 1837, and that was discovered after death at autopsy. It was fifty years later before Reginald Fitz in Boston showed appendicitis to be a clean cut disease and capable of early diagnosis, operation and recovery. Before that the patient had "locked bowels" and when he died the minister said that "God had taken him in his own good time." Thus in a thousand years has modern medicine grown and become expensive. The old medicine was cheap because it was not much medicine.

Contrast the automobile doctor with the doctor of the saddlebag era. He has had two to four years of college before he could even be admitted to the medical school, then four years in medical school at an expense averaging a thousand dollars a year then a fifth year in hospital. He is from twenty-four to twenty-eight years of age before he can begin to practice and then the empty, waiting years. There is his car, its upkeep and depreciation, his office equipment, instruments, books, medical journals and societies. When the doctor leaves to attend a medical meeting everything stops but the overhead. The merchant leaves the store but the trade goes on. The doctor remembers all the work that cannot be paid. He may get accustomed to that in a languid way. Then there are reasonable bills that cost toil and loss of sleep and weariness. His human nature flunks of the callous publicity of the patient who rides in the shining new car and leaves his bill for pain unpaid. And before he knows it old age is near both his strength and his income decrease, and he wonders whether some other economic plan might not be better.

In 1931 one half of all the physicians in Michigan received an income of less than \$2500.00. In Georgia it is estimated to be less than \$2000.00 for that year. These are gross incomes and the overhead must be deducted. This usually amounts to 20 to 50 per cent. In the peak of the boom, 1929, one half of the physicians in

the United States earned \$3800.00 or more and the other half less than \$3800.00. For every physician with a net income of \$10,000 or more, there were two with a net income of \$2500.00 or less. In that year, the net income of dentists averaged \$3,000.00. The average doctor and dentist seem rather to be underpaid. No solution of the problem of the costs of medical care can come by reducing the income of the doctors and dentists.

Medicine ranks about fifth in the business of the country in the point of annual expense, money invested, and people engaged. For 1929 it cost about \$3,650,000,000. In recent years it is probably not half that amount. Tobacco, toilet articles and recreation cost \$5,800,000,000, and automobiles and travel \$9,475,000,000. Medical expenditures seem to be from 2 to 4 per cent of the national income. The total investment for hospitals and medical and dental services is \$5,850,000,000. For every dollar spent for medical service 29.8 per cent goes to physicians in private practice, 23.4 to hospitals, 18.2 to drugs, 12.2 to dentists, 5.5 to nurses, 3.4 to cultists, 3.3 to public health, and 4.2 to all others. Something over one million people furnish medical, dental, nursing, hospital and drug services to the American people. Seventy-five million or 60 per cent of our people probably have an annual income of less than \$3,000.00, 46,000,000 or 27 per cent between \$3,000.00 and \$5,000.00 annually and 3,750,000 \$5,000.00 and over.

Medical costs are unexpected, unpredictable, uncontrollable and come as unbudgeted emergencies. "Between the physician, dentist, nurse, or hospital able and willing to provide service, and the person who needs it stands a barrier compounded of ignorance and inability to pay." (Wilbur.) Families with an income of \$1200 and under average \$49.00 per year for medical care: \$1200 to \$2000, \$67.00; \$2000 to \$3000, \$95.00; \$3000 to \$5000, \$138.00; \$5000 to \$10,000, \$249.00 and \$10,000 and over \$303.00. But it is the serious illness and the long illness that drain the family. One family had a son with a serious disease of the nervous system that lasted three years and cost \$12,000. The third year another son with an annual income of \$3,380.00 had two running ears, two mastoid operations, two physicians and two surgeons from January 1934 to January 1935 at a total expense of \$1950.00. His illness used up his savings and his income. He borrowed \$100.00 from his brother and still owes a balance to his physicians. He gave up his position on account of his illness.

A school teacher had influenza and pneumonia with loss of salary for two months. Her total bill was \$1,000.00—nearly equal to her annual income. While she was in the hospital her old mother and her old aunt sickened and died and their medical, nursing and funeral

ture of resuscitation Henderson²⁵ offers a study well worthy of perusal

Some items of general interest are deserving of mention Crampton²⁶, Lahey²⁷, and Crile²⁸ give interesting as well as practical observations, and for a detailed encyclopedic summary, anesthesia in a nut shell, Wiggin²⁹ has produced a compendium of knowledge One sentence from Crampton²⁶ is worthy of direct quotation "Personality is non-toxic, and does not throw any strain on the heart, liver, or kidneys, nor does it depress respiration" This article should be read by all anesthetists

Reports on the newer anesthetics, cyclopropane, and vinethene are increasing But the pioneer demonstrations of Waters³⁰ are recognized by all Amplification by animal experimentation is offered by Shackell and Blumenthal³¹ From Canada come reports from Bourne^{32 33} and Griffith³⁴, and from England from Sykes³⁵ The most complete reports on vinethene are given by Goldschmidt and his co-workers³⁶ and Bourne The latter emphasizes the value of both in obstetrics^{33 37}

The cyanosis in nitrous oxide oxygen anesthesia has received intensive study by Raginsky and Bourne³⁸ The necessity of the use of ether in sealed half pound tins, as supplied by the manufacturers, is questioned by Gold and Gold³⁹, who stress the similarity in quality and great diminution of expense when, for hospital use, large containers of U S P ether are bought, and the daily supply metered out by the pharmacist "Why pay 62¢ a pound when equal quality may be obtained for 11¢?"

Explosions of oxygen ether machines are reported by two German authors, Schultz⁴⁰ and Jordan⁴¹, with comments on static by Schröder and Neeff⁴², who recommend complete grounding as well as control of humidity

The use of the soda lime filter, especially by the circuit method, is increasing, but Poe⁴³ is not convinced that its universal adoption is desirable

Gettler⁴⁴, from the medical examiner's viewpoint, describes a micro-boiling point method for the detection of ether in the tissues Examples of the importance of such a test in medico legal cases are given Another study of fatal cases is worthy of attention Purks⁴⁵, from the Peter Bent Brigham Hospital, found that after 1600 operations on non-cardiac patients there were sixty deaths, but with cardiac patients there were sixty deaths in 494 operations Congestive failure was not found to be significant as a cause of death "The cardiac group differs from the non-cardiac group chiefly in the presence of fatal coronary occlusion and in greater incidence of fatal pulmonary complications, chiefly infarction and pulmonary embolism"

Guedel and Treweek⁴⁶ show a very ingenious

production of ether apnea, or as named by Woodbridge, passive respiration "With an ether anesthesia technique in which the blood carbon dioxide and oxygen are under control, respiratory paralysis becomes not an accident to be shunned, but at times a favorable circumstance to be encouraged Apnea may be produced at will These apneas are of no advantage except that they present a quieter abdominal operating field than can be produced with the same ether saturation under other circumstances"

The barbiturates by mouth still enjoy very general use for premedication, but have not supplanted the opiates The former are usually given as a hypnotic the night preceding the operation, the latter shortly before starting the anesthesia The combination of amidopyrin and a barbiturate is rarely used in premedication, but a warning to eliminate entirely such use is sounded by Madison and Squier⁴⁷, who trace directly to this combination in certain individuals the development of primary granulocytopenia or agranulocytic angina

For obstetrical anesthesia the final report of the Boston Lying-In Hospital's study of various drugs and methods has appeared⁴⁸ For the early stages pentobarbital and scopolamine are approved, with nitrous oxide oxygen at the expulsive stage

Spinal anesthesia Although Meeker and McCreary⁴⁹ report a small series of satisfactory cases with metycaïne, the trend is not toward the use of new drugs but toward variations in method of using the previously accepted ones With an experience of 35,000 cases, Sebrechts favors the use of 1 1500 percain (nupecain) by a technique not readily accepted by all The needle is inserted with the patient either sitting up or lying on his side, then with the needle in situ the position of the patient is changed, and 5 cc injected every five minutes until the desired level of anesthesia is reached Then after five minutes, the patient is placed in position for operation. About thirty-five minutes are consumed in this procedure

Franken⁵¹ reports a small series of cases with "hypobaric" percain in Germany, but in this country Ehlich⁵² in New York gives a series of 150 (now 1500) cases which may be of far-reaching importance in the furthering of this technique For a general discussion of the mechanics of spinal anesthesia, with hyper- and hypobaric solutions, articles by Babcock⁵³, Vohrs⁵⁴, and Bingham⁵⁵ are worthy of special study

In intensive laboratory study of the whole phenomenon of subarachnoid block Co Tui⁵⁶ and Thompson⁵⁷ offer very painstaking works The former as usual favors the use of ephedrin, and sees little benefit, perhaps harm, from the Trendelenburg position The conclusions of Thompson, after experimental work on dogs, are as follows "There is no evidence to in-

dicates that during spinal anesthesia procaine diffuses in the cerebrospinal system so far as the centers of respiration to produce respiratory paralysis by direct action. In experimental animals during respiratory paralysis following spinal anesthesia there is not sufficient procaine in the fluid of the cisterna magna to produce an effect on the centers of respiration and vasomotor control. The collapse of circulation and resultant bulbar anemia appear to be intimately associated with respiratory failure. "The deficiency of circulation is the result of an extensive action of the drug on nerve elements of the filaments of the spinal cord producing paralysis of the sympathetic system and the cardio-accelerator mechanism and paralysis of costal respiration. The results of these effects are a loss of vascular tone and changes in circulatory mechanism for which changes cannot be made by the central nervous system."

Of importance, too, is Emmett's⁴⁸ study on the sequence of the blocking of nerves by procaine. Effects are observed first on the sensory secondly on the sympathetic and thirdly on the motor nerves. Due to the time elapsing by methods of measurement, it is likely that the sympathetic fibres are acted on first. On recovery, motor nerves are first and sensory and sympathetic about at the same time.

That little demonstrable harm to the cord and its tissue is produced by spinal anesthesia is shown by Koster and Kasman⁴⁹ in a laboratory study on frogs, and in some human cases. The changes shown were transitory only and after twenty-four hours there was no deviation from the normal. However, since there may be reactions from lumbar puncture (Schube and Le Drew⁵⁰) Sebrechts⁵¹ feels that these effects are less with spinal anesthesia. Accurate evaluation is difficult, and it is obvious that much time must elapse before the last word is written on spinal anesthesia.

That, however the method may be unsafe in many cases, is shown by the number of articles warning against its promiscuous use.^{52, 53} An excellent study on fatalities is given by Thompson⁵⁴ who found seventy-seven fatalities from 1676 anesthetics of these sixty-nine were due to the disease, seven influenced by the anesthesia, and one directly due to the anesthesia. His conclusion is "The pronounced depressant effect produced in the circulatory mechanism by spinal anesthesia is not desirable for bad risk patients, especially those in whom a failure of circulation might be anticipated."

For urological work epidural anesthesia receives but faint praise from Hess.⁵⁵ Howley and Robertson⁵⁶, and Foulds and Douglas⁵⁷ prefer spinal novocaine for short operations, nupercaine for long, while Onhauser⁵⁸ extols the use of caudal

The use of avertin by rectal instillation has become less experimental, though it is likely that more deaths have occurred than are recorded in the literature. One thousand avertin anesthetics, reported by Bourne and O'Shaughnessy⁵⁹ give a representative series of surgical cases, in which there were twenty-five deaths, none of them due to the anesthetic. Watter⁶⁰ gives an interesting interpretation of avertin basal narcosis under the name of "Hypnesthesia."

The foreign literature contains much more on intravenous anesthesia by sodium evipal (evipal in this country) than does the American. In some German clinics this drug is used in nearly 30 per cent of the cases. The most complete discussion in English based on a study of 15,000 cases is given by Killian.⁶¹ One death is reported. An enthusiastic film by Jarman and Abel, was shown at the anesthetists' convention in Boston in October. They emphasize the 'Safety pause' of 30 seconds after 3 cc. have been given. An apparatus for its use is described by Bud.⁶² Two hundred and eighty American cases are reported by Livingston Emv and Lieber⁶³ and thirty Canadian by Heard.⁶⁴

The use of nerve-blocking for relief of pain, i.e., the control of pain pathways is a somewhat new field for the anesthetist. Ruth, the pioneer, reports his results.

Gas therapy is of course of interest to the anesthetist, and in a great many hospitals the responsibility for the care and use of oxygen tents is entrusted to the department of anesthesia. While the consensus of most scientists⁶⁵ is that more than 70 per cent oxygen is harmful to pulmonary tissue, Evans⁶⁶ continues to demonstrate the value of 100 per cent oxygen in human patients suffering from oxygen want. Where a mask or tent is unavailable or inconvenient, Simon⁶⁷ describes a machine for subcutaneous oxygen therapy.

For teaching and statistical purposes a system of records is essential. Such a scheme is described by Rovenstine.⁶⁸ That there is still a void in the teaching of anesthesia in medical schools, especially to graduates is shown by a folder sent out by a firm⁶⁹ engaged in the manufacture of anesthetic gases, in which is advertised its chain of clinics teaching nitrous oxide oxygen anesthesia. The nearest one locally is in Cambridge. With the demand for instruction in the growing field of anesthesia it would seem that the recognized sources for the dissemination of medical knowledge, namely the medical schools should undertake this work rather than a commercial organization. But for practical purposes the latter is far better than none. If the demand is not met by the schools, no objection can be raised to its assumption by others.

The theories of respiration and the gases we know now may be entirely inadequate for fu

ture students Already the rarer gases are under investigation, and a totally new concept of their importance may be developing A preview of this future picture is given by Orcutt and Waters⁵⁰ When better anesthetists are made, Waters will make them

That the study of the current literature in anesthesia may be adequately covered, the Boston Society of Anesthetists has formed within its membership a reading report group holding monthly meetings, among whom no less than forty-nine journals are regularly read, and abstracts of articles on anesthesia presented To this group the present reviewer extends his sincere thanks

REFERENCES

- Wright, S Normal regulation of respiration *Proc. Roy Soc. Med.* 27 609 (March) 1934
- Moncrieff A Respiratory failure *Proc. Roy Soc. Med.* 27 616 (March) 1934
- Cannon W B Consideration of possible toxic and nervous factors in the production of traumatic shock. *Ann Surg.* 100 704 (Oct.) 1934
- Phemister D B and Livingstone H Primary shock *Ann Surg.* 100 714 (Oct.) 1934
- Brooks B and Blalock A Shock, with particular reference to that due to hemorrhage and trauma to muscles *Ann. Surg.* 100 728 (Oct.) 1934
- Blalock A Acute circulatory failure as exemplified by shock and haemorrhage *Surg Gyn Obst.* 58 551 (March) 1934
- Kemp W N Time-shock factors in general anesthesia. *Am J Surg.* 25 289 (Feb.) 1934
- Waldbott, G L So-called thymic death pathologic process in 24 cases *Am J Dis Child.* 47 41 (Jan.) 1934
- Symmers D Status lymphaticus *Am. J Surg.* 26 7 (Oct.) 1934
- Lugli G Einfluss der Anästhesie auf die anaphylaktische Sensibilisierung *Schmerz Narkose-Anaesth.* 6 119 (March) 1934
- Griffiths H. F Post-operative pulmonary complications *Brit J Anaesth.* 11 89 (Apr.) 1934
- Robertson H. E Pulmonary embolism following surgical operation *Am J Surg.* 26 15 (Oct.) 1934
- Vance B M Thrombosis of the veins of the lower extremity and pulmonary embolism as a complication of trauma *Am J Surg.* 26 19 (Oct.) 1934
- Beecher H K The effects of carbon dioxide hyperventilation on the aeration of the lungs in patients after operation. *Surg Gyn & Obst.* 59 734 (Nov.) 1934
- Flagg P J The prevention of asphyxia during operation *N Y State J Med.* 34 665 (Aug. 1) 1934
- Jackson C and Jackson C L The lingual death zone in asphyxia. *N Y State J Med.* 34 681 (Aug. 1) 1934
- Sise, L F The technic of intratracheal anesthesia. *Clin. of N A.* 14 1049 (Oct.) 1934
- Woodbridge P D A flexible metal tube for intratracheal anesthesia *Anesth & Analg.* 13 68 (Nov-Dec.) 1934
- MacGillivray, W V The story of pallid anesthesia The effects of a recall acid as a means of recovery to sensibility *Harvard Dental Record.* 8 1 (Jan 31) 1934
- Ellison, A and MacGillivray W V Pallid anesthesia *J Indiana M A.* 27 253 (June 1) 1934
- Shambaugh P and Boggs R. The effect of intravenous hydrochloric acid in narcosis *J. A. M. A.* 102 1282 (Apr. 21) 1934
- Wilson R A. and Torrey M A Effects of alpha lobelin on respiration *Am J Surg.* 23 426 (March) 1934
- Haggard H. W., and Greenberg, L A. The effects of cigarette smoking upon blood sugar *Science.* 79 166 (Feb. 16) 1934
- Editorial Cigarette smoking and the blood sugar *J A M A.* 102 771 (March 10) 1934
- Henderson Y Resuscitation. *J A M A.* 103 750 and 534 (Sept. 8 and 15) 1934
- Crampton H P Factors other than anaesthetics affecting anaesthesia *Proc. Roy Soc. Med.* 28 91 (Nov.) 1934
- Lahey F H Editorial Modern anesthesia. *Surg Gyn & Obst.* 59 943 (Dec.) 1934
- Crile G Anesthetics narcotics and the sick man *Am J Surg.* 23 102 (Jan.) 1934
- Wiggin S C General care of the patient in anesthesia *Am J Surg.* 23 106 (Jan.) 1934
- Waters R M and Schmidt, E R. Cyclopropane anesthesia. *J A M A.* 103 975 (Sept. 29) 1934
- Shackell L F and Blumenthal R. R. Gaseous anesthetics 1 Effects of cyclopropane on the healthy and tubercular rhesus monkey *Anesth & Analg.* 13 183 (July-Aug.) 1934
- Bourne W Estimate of the usefulness of some of the newer anesthetics in practice *Canad M. A. J.* 31 44 (July) 1934
- Bourne W Divinyl oxide and cyclopropane—the new anesthesics of choice in obstetric practice *Canad. M. A. J.* 30 419 (Apr.) 1934
- Griffith H R. Cyclopropane anesthesia clinical record of 350 administrations *Canad. M. A. J.* 31 157 (Aug.) 1934
- Sykes W S Cyclopropane anaesthesia *Brit M J.* 2 901 (Nov 17) 1934
- Goldschmidt S Ravdin I S Lucke, B Muller G P Johnston C G and Ruigh W L Divinyl ether *J A M A.* 102 21 (Jan. 6) 1934
- Bourne W Divinyl oxide anaesthesia in obstetrics *Lancet.* 1 566 (Mar.) 1934
- Raginsky B B and Bourne W Cyanosis in nitrous oxide oxygen anaesthesia in man *Canad M A J.* 30 518 (May) 1934
- Gold H and Gold D Stability of U S P ether after the metal container is opened *J A M A.* 102 817 (Mar. 17) 1934
- Schultz, W Aetherexplosion bei der Narkose mit dem Roth Dräger-Apparat *Schmerz Narkose Anaesth.* 6 98 (Mar.) 1934
- Jordan O Explosion eines Narkose apparates *Schmerz Narkose-Anaesth.* 7 1 (July) 1934
- Schröder H. und Neeff T C Die Reibungselektrizität als kussere Ursache der Explosionen von Narkose-apparaten und deren Verhütung *Schmerz Narkose Anaesth.* 6 103 (Mar.) 1934
- Poe J G Carbon dioxide gaseous anaesthetics and the advantages of rebreathing methods of their administration *Surg Gyn. & Obst.* 58 711 (Apr.) 1934
- Gettler A O Medico legal aspects of deaths associated with chloroform or ether *Am J Surg.* 26 165 (Oct.) 1934
- Purks W K The cause of death of patients with organic heart disease subjected to surgical operation *Ann Int Med.* 7 885 (Jan.) 1934
- Guedel A. E and Treweek D N Ether apnoeas *Anesth. & Analg.* 13 263 (Nov-Dec.) 1934
- Madison F W and Squier T L The etiology of primary granulocytopenia (agranulocytic angina) *J A M A.* 102 755 (Mar. 10) 1934
- Irving F C Berman S and Nelson H B The barbiturates and other hypnotics in labor *Surg Gyn. & Obst.* 58 1 (Jan.) 1934
- Meeker W R and McCreary P L Metycaine in spinal anesthesia. *Am J Surg.* 24 130 (Apr.) 1934
- Sebrechts J Spinal anaesthesia *Brit J Anaesth.* 12 4 (Oct.) 1934
- Franken H 250 Percain-Lumbalanästhesien nach Jones. *Schmerz Narkose-Anaesth.* 6 114 (March) 1934
- Ehrlich S D Spinal anesthesia with hypobaric solution of nupercain *Anesth & Analg.* 13 240 (Nov-Dec.) 1934
- Babcock W W Spinal anaesthesia in fact and fancy *Surg Gyn & Obst.* 59 94 (July) 1934
- Vehrs G R Some of the chemic secrets of the subarachnoid space during spinal novocaine anesthesia *North west Med.* 33 311 (Sept.) 1934
- Bingham E M Specific gravity in spinal anesthesia *California & West Med.* 41 251 (Oct.) 1934
- Co Tul F W Further studies in subarachnoid anesthesia. *Anesth & Analg.* 13 143 and 183 (July-Aug and Sept. Oct.) 1934
- Thompson K W Spinal anaesthesia experimental study *Surg Gyn & Obst.* 58 852 (May) 1934
- Emmett J L Subarachnoid injection of procaine hydrochloride the quantitative effects of clinical doses on sensory sympathetic and motor nerves *J A M A.* 102 425 (Feb. 10) 1934
- Koster H. and Kasman L P Histologic studies of the spinal cord following spinal anesthesia *Am J Surg.* 25 277 (Aug.) 1934
- Schube P G and LeDrew F The prevention of reactions due to lumbar spinal puncture *New Eng J Med.* 211 537 (Sept. 20) 1934
- Abelson A Reducing morbidity and mortality in spinal anesthesia *Med Rec.* 140 469 (Nov. 7) 1934
- Unsworth H. R Dangers of the promiscuous use of spinal analgesia *New Orleans M. & S J.* 86 543 (Feb.) 1934
- Thompson K W Fatalities from spinal anesthesia *Anesth & Analg.* 13 75 (Mar-Apr.) 1934
- Hess E Epidural anesthesia in urological surgery *J Urol.* 31 621 (May) 1934
- Howley T F and Robertson J P Spinal anesthesia. *Am J Surg.* 24 129 (Apr.) 1934
- Foulds G S and Douglas H S Spinal anesthesia in urology *J Urol.* 31 607 (May) 1934
- Onhauser V F Use of caudal anaesthesia in urology and proctology *Canad M A J.* 31 51 (July) 1934
- Bourne W and O'Shaughnessy, P E One thousand avertin anaesthetics *Canad M. A. J.* 31 276 (Sept.) 1934
- Watter L Hypnesthesia an interpretation of avertin basal narcosis *Anesth & Analg.* 13 217 (Sept. Oct.) 1934
- Killian H. The new German evipan sodium anesthesia. *Anesth & Analg.* 13 177 and 227 (Sept. Oct. and Nov. Dec.) 1934
- Bud G Apparat zur intravenösen Injektion—insbesondere zu intravenöser Evipan Natrium Narkose und Bluttransfusion—bei Operationen und Tierversuchen. *Schmerz Narkose-Anaesth.* 6 115 (Mar.) 1934
- Livingston E M Emy S and Lieber H Evipan sodium. A short intravenous anesthesia. *Am J Surg.* 26 516 (Dec.) 1934

72. Heard, K. M.: Clinical observations on the use of eripran. *Canad. M. A. J.* 31:417 (Dec.) 1934.
 74. Ruth, H. B.: Diagnostic, prognostic and therapeutic nerve blocks. *J. A. M. A.* 10 419 (Feb. 10) 1934.
 75. Barach, A. L.: The treatment of asphyxia in clinical disease with especial reference to recent developments in the use of oxygen in heart disease. *New York State J. Med.* 34:672 (Aug. 1) 1934.
 76. Evans, J. H.: Discussion of above. *New York State J. Med.* 34 679 (Aug. 1) 1934.
 77. Simon, B. B.: Subcutaneous oxygen therapy. *Anesth. & Analg.* 13:733 (Nov. Dec.) 1934.
 78. Rosenstine, E. A.: A method of combining anesthetic and surgical records for statistical purposes. *Anesth. & Analg.* 13 122 (May-June) 1934.
 79. The Ohio Chemical & Manufacturing Co. Rec'd by mail Mar. 1 1934.
 80. Orcutt, F. S., and Waters, R. M.: Possible influence of rare gases on physiology. *Anesth. & Analg.* 13:238 (Nov.-Dec.) 1934.

COMPARISON OF DISEASE INCIDENCE IN CONNECTICUT WITH 1934 AND SEVEN YEAR AVERAGE

MONTH ENDING MAY 25 1935

Diseases	1935				Average cases reported for week corresponding to May 26 for past seven years	1934			
	Week ending May 4	Week ending May 11	Week ending May 18	Week ending May 25		Week ending May 5	Week ending May 12	Week ending May 19	Week ending May 26
Actinomycosis	—	—	1	—	—	—	—	—	—
Cerebrospinal Men	—	1	1	—	2	—	—	1	3
Chicken Pox	154	117	150	127	105	82	163	185	122
Conjunctivitis Inf	3	6	12	9	3	4	4	1	—
Diphtheria	2	5	3	1	13	3	3	3	—
Dysentery Bacillary	—	1	3	1	—	—	—	—	—
Encephalitis Epid	—	—	2	—	—	—	—	2	—
German Measles	261	248	268	266	41	11	2	2	14
Influenza	5	1	—	2	7	1	—	1	1
Malaria	—	1	—	—	—	—	—	—	—
Measles	1493	1535	1202	918	271	126	90	156	173
Mumps	43	93	72	33	90	65	121	64	140
Paratyphoid Fever	—	—	—	3	—	2	—	—	—
Pneumonia (Broncho)	37	27	23	15	24	23	19	33	16
Pneumonia (Lobar)	48	41	28	27	36	27	39	30	32
Pollomyelitis	1	—	—	—	—	—	1	—	—
Scarlet Fever	90	103	104	130	99	60	70	59	57
Septic Sore Throat	5	8	3	7	1	4	3	4	—
Smallpox	—	—	—	—	1	—	—	—	—
Tetanus	—	—	—	—	—	—	—	1	—
Trachoma	—	—	—	—	—	—	—	1	—
Trichinosis	2	—	2	—	—	—	—	—	1
Tuberculosis (Pul)	45	31	45	27	27	25	42	14	33
Tuberculosis (O F)	2	1	2	4	4	4	2	2	4
Typhoid Fever	1	—	1	1	1	3	—	1	1
Undulant Fever	2	—	—	1	—	1	1	—	1
Whooping Cough	63	53	64	65	65	59	57	35	60
Gonorrhea	31	36	25	13	34	23	20	23	23
Syphilis	72	55	50	47	43	64	42	40	44

Remarks No cases of Asiatic cholera, glanders, plague or yellow fever during the past seven years.

CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C CABOT, M D

CASE 21241

PRESENTATION OF CASE

A sixty-eight year old retired American nurse entered because of cough and fatigue

Five years before admission she awoke one night and found herself wheezing and out of breath. She had to sit up in bed for about an hour. Following this attack she rested in bed for two weeks. At about this time she had a feeling of hyperesthesia in the left arm, a condition which never completely cleared up. Nine months before entry she had a similar attack of shortness of breath which was associated with cough without sputum. At that time a physician found auricular fibrillation with the rate of 160 at the apex and put her on digitals. This is the only other attack she had until admission. Recently she complained of fatigue and slight nausea. She had lost thirty pounds in weight during the past year. On the evening before admission she complained of pain in the back below the angle of the right scapula. This pain radiated to the front and also to the right shoulder.

She had scarlet fever and diphtheria as a child, erysipelas at the age of nineteen and pneumonia ten years before admission.

Physical examination showed a well developed woman with evidence of considerable weight loss. The lungs were clear. The heart was enlarged to the left, the left border of dullness being 9 centimeters from the midsternal line and 2 centimeters beyond the mid-clavicular line. There were no murmurs or gallop rhythm. The pulse was irregular and varied between 120 and 140 at the apex. The blood pressure was 180/90. The peripheral arteries were somewhat sclerotic. There was an area of tenderness in the upper abdomen. No masses were felt. There was no peripheral edema.

The temperature was 98.4°. The respirations were 30.

Examination of the urine showed a specific gravity of 1.026 to 1.030, a slight trace of albumin and a sediment of 15 to 40 white blood cells, an occasional red blood cell and numerous bacteria. The red cell count of the blood was 4,580,000, with a hemoglobin of 70 per cent. The white cell count was 16,200, 76 per cent polymorphonuclears. The stools were negative. An electrocardiogram showed auricular fibril-

lation, rate 100 to 110, and a ventricular block of the left branch type.

She continued to fibrillate and on the day following admission a small area of bronchial breathing and sticky râles were heard at the right base. She was given intravenous glucose.

An x-ray film on the ninth day showed hazy dullness at the right base which partially obscured the outline of the diaphragm and obliterated the costophrenic angle. The diaphragm moved fairly well on both sides and was in normal position. The left lung and the upper part of the right were clear. The heart showed slight diffuse enlargement. There was extensive calcification of the aorta.

It was felt that there was a considerable amount of fluid at the right base but the patient preferred not to be tapped if possible. She developed a slight cough and raised small amounts of bloody sputum. Digitalis was continued but was replaced approximately two weeks after admission by quinidin. The latter, however, had to be stopped three days later because of nausea. Her auricular fibrillation persisted, the apex rate being 104 and the radial 90 on the twenty-first day. Two days later she complained of pain in her left side. The temperature was 101.4°, the pulse 125. A slight friction rub was heard in the fourth intercostal space transmitted downward to the left. It was synchronous with the heart beat but varied with respirations to the point of disappearing. The following day 14 ounces of clear straw-colored fluid was removed from the right chest. No more was removed because of cough. Her apex rate rose to 140. Two days later she continued to raise small amounts of bloody sputum. Her neck veins were very full. On the twenty-seventh day, râles were heard in the left chest. The neck veins were not distended although venous pulsations could be seen. Suddenly, after urinating, she developed a marked shortness of breath and became unresponsive. Within ten minutes she was able to move her left arm and leg only slightly. There was drooping of the right lower face and soon the entire right side of the body became flaccid. She continued to fibrillate, remained in a semicomatose condition and died four days after this last attack.

DIFFERENTIAL DIAGNOSIS

DR WILLIAM B BREED I should like to consider this as a perfectly straightforward case first and then go over it again with a view to seeing whether there is anything in the record which could lead us to make another guess.

She apparently is an old lady who had been perfectly well until the age of sixty-three, when she had, apparently, an attack of nocturnal dyspnea. Following this, while she was resting in bed, she had a feeling of hyperesthesia in the left arm, a symptom which never com-

pletely cleared up We know from the record that she was found somewhat later (nine months before entry) to be fibrillating The cause of this nocturnal dyspnea it seems to me might be twofold (1) some coronary disturbance without an infarct and (2) it might have marked the onset of her irregularity I do not see exactly how we can tell which it is I should be rather inclined to favor the former Nine months before entry she had a similar attack of nocturnal dyspnea and at that time there was complete irregularity of the heart She was presumably digitalized She apparently was not in bed during this time but complained of fatigue, nausea and some congestive disturbance and had lost thirty pounds Then the evening before she came in she had pain in the right back below the angle of the scapula with radiation to the front, also to the right shoulder It is a little difficult to find just how severe this pain was whether it was a respiratory pain—I think that would be of considerable importance—or whether it was so severe that she had to have opiates to control it.

Dr SYLVESTER MCGINN It was severe pain which required opiates, and it was respiratory.

Dr BREED It was a respiratory pain not an overpowering steady pain

Dr MCGINN Yes

Dr BREED I think that is a very important point

The past history is of no importance it seems to me in this connection

There were no murmurs and no gallop rhythm That is of considerable importance. One would expect with a person of this age, with that amount of arteriosclerosis in her story, to hear murmurs, although in the presence of auricular fibrillation they may have disappeared She may have had murmurs or a murmur before she began her irregularity

There was an area of tenderness in the upper abdomen I would like to know more about it if I may whether it was a tender liver or unusual tenderness in the epigastrium

Dr MCGINN The liver was tender in that region and later the splenic area became tender also

Dr BREED So that we have here a person who presumably has arteriosclerotic and hypertensive heart disease with coronary sclerosis and auricular fibrillation It is stated that the pain in the back was pleural in character and still on physical examination the lungs were said to be clear That is rather confusing, it seems to me. One would think that if the pain was so severe (and of pleural character) the night before admission that she had to be given opiates one would find some abnormality on examination of the chest. However, we will have to let that go as such The urine was not abnormal except

perhaps indicating some congestion There was no anemia There was a leucocytosis of 16,000 and there was very definite evidence of ventricular block of the left bundle branch type by electrocardiogram.

Whether this episode the night before admission was a coronary infarct, or whether it was pulmonary embolus from mural thrombi in a heart that was fibrillating I think it is very difficult to say I think it could be either but as I read it over and as I hear that this pain in the back was pleural in character, I should rather favor the embolic explanation Apparently she was without pain and there was no evidence of pleurisy at the time of examination That is confusing and I do not see how we can decide about it without further data. She continued to fibrillate and the next day we do find pulmonary signs That backs up the embolic explanation of the pain. She had some sticky sputa and thereupon she was given intravenous glucose I do not know why she was given intravenous glucose In the record there does not seem to be any indication for the administration of it.

Dr. McGINN She was vomiting

X RAY INTERPRETATION

Dr. GEORGE W HOLMES In this film the heart shadow is definitely increased in size a rather general increase She probably had some enlargement of the left ventricle and later dilatation of the auricles. There is well marked calcification in the arch of the aorta and a general haziness in the lower part of the right lung field, particularly in the angle between the heart and diaphragm It states in the note that the diaphragm moved with respiration, that would make one feel that this is not an inflammatory process If she had as much change as that in the lung from an acute inflammatory process one would hardly expect her to move the diaphragm except perhaps with very forced respiration

We have a lateral view which does not give much added information You can see the outlines Then we have films taken nearly three weeks later and they show a marked change in the appearance of the chest. The heart is increased in size and the dullness at the bases has increased The outline of the diaphragm on the right side has disappeared, giving the picture of failing heart with fluid accumulating in the pleural spaces

The question of pleurisy or infarct has been raised Emboli and infarcts of the lung are very easily overlooked by x ray and often do not give any more of a shadow than you see here On the other hand this patient has a small amount of fluid and the lower part of the lung is not well aerated. I do not think we have to find any pathology in that part of the

lung other than congestion with fluid in the pleural space

DIFFERENTIAL DIAGNOSIS CONTINUED

DR BREED The clinical observation of pleurisy is perfectly consistent with embolus, so that I should be willing to explain the pleurisy on an embolic basis without calling it inflammatory

This finding of ventricular block is a very definite thing and cannot be accounted for by the effect of digitalis. It indicates coronary disease whether or not there is an infarct. I do not see how we can tell from this report itself that there has been a definite infarction of the heart, but she certainly has coronary disease. Very soon thereafter she developed more cough and raised bloody sputum, which is further evidence of emboli to the lungs. The digitalis was continued and was then supplanted by quinidine, which was not tolerated well. Following that she had pain in the left side of the chest. Was that pain pleural in character, too?

DR MCGINN Yes

DR BREED The temperature rose. This is perfectly consistent, as is the slight friction rub in the fourth intercostal space which was influenced tremendously by respiration, so that I see no reason to believe that this is essentially a pericardial rub. I should think it was more likely a pleuro-pericardial affair, embolic in nature. She then suddenly developed marked shortness of breath, became unresponsive and had what was apparently cerebral embolism because she had paralysis on the entire right side of the body and died.

This case as it presents itself is not an unusual picture of hypertensive and arteriosclerotic heart disease with auricular fibrillation, mural thrombi, pulmonary and cerebral emboli. She has coronary disease. Whether she had a coronary thrombosis, either fresh or ancient, I think it is impossible to tell, but from the story one does not have to make that diagnosis. I have no other differential diagnosis to offer.

DR TRACY B MALLORY I should like to ask Dr Breed where he thinks the source of the emboli was?

DR BREED Presumably mural thrombi in the auricles—both auricles

CLINICAL DISCUSSION

DR MCGINN One very interesting personal side of this case is that this nurse had been in active care of a single patient for thirty-five years until the death of that patient, and she succumbed shortly after. I think that is an outstanding example of devotion in medical service.

Glucose was given intravenously because of nausea and vomiting over a period of time and she was apparently symptomatically relieved by it. In addition to the quinidine and digi-

tal, and because of the persistent fibrillation and rapid rate, we also gave intravenous strophanthin, first one three-hundredth of a grain, then one hundred-fiftieth of a grain and the next day one hundredth of a grain. That was done some time, probably a week before the fatal outcome and before these emboli started breaking away and after she had the quinidine medication. There was nothing that affected the fibrillation, digitalis, quinidine or strophanthin. I suppose one always suspects quinidine when emboli appear, but since the rhythm was not altered there is no reason to believe the quinidine had anything to do with the emboli.

DR PAUL D WHITE I saw this case in consultation with Dr McGinn because of the very difficult problem of controlling the heart rate. She is an example of occasional cases, fortunately only very occasional, which respond poorly to any medication. When there is such poor response one should always suspect something in the way of a complication in addition to the immediate cardiac arrhythmia. Thus may be pulmonary thrombosis or embolism, as in a case discussed not long ago at one of these conferences in whom pulmonary infarction of high degree prevented proper control of the ventricular rate in auricular fibrillation. In the present case we resorted to quinidine more or less as a last measure, after having failed with digitalis, quinidine once in a while will restore normal rhythm in such an emergency and save a patient from fatal heart failure. Any toxic effect from quinidine except that of nausea and vomiting can be ruled out in this case because of the failure of the rhythm in any way to be affected by quinidine and because there were no other serious signs. Quinidine kills very rarely, either by an overpowering depression of the cardiac pacemakers or by the induction of ventricular fibrillation, or, in the rarest cases of all by the pumping out of emboli from the heart at the time of the restoration of normal rhythm. Quinidine can be used much more freely and safely than many physicians believe. Having failed with quinidine we thought of trying other drugs and so used strophanthin, which we probably employ much too little in this country. But this drug also failed to give relief, and the patient died, not apparently from the immediate cardiac condition but from the complications.

DR MALLORY Have you any theory as to the hyperesthesia of the left arm which persisted over the six year period?

DR BREED I do not see how it can be explained on the basis of pressure phenomenon.

DR WHITE Such constant hyperesthesia does not result from coronary disease. Most of the patients showing it have some nervous or rheumatic background.

Dr. BREED We have no evidence here of pressure or any mechanical cause

Dr. MCGINN No, except that she did have some motor loss on that side immediately after the episode nine months ago in addition to hypereesthesia.

Dr. BREED Neuritis, perhaps!

CLINICAL DIAGNOSES

Arteriosclerosis, generalized
Hypertension.
Hypertensive heart disease
Auricular fibrillation
Cerebral embolus.
Right hemiplegia.
Bronchopneumonia (terminal)

Dr. WILLIAM B. BREED'S DIAGNOSES

Arteriosclerotic and hypertensive heart disease.
Bilateral auricular mural thrombi
Pulmonary and cerebral emboli
Auricular fibrillation

ANATOMIC DIAGNOSES

Hypertrophy of the heart, hypertensive type.
Mural thrombi, right and left auricles
Multiple emboli—pulmonary, splenic renal and cerebral
Acute fibrinous pleuritis
Acute fibrinous pericarditis.
Arteriosclerosis, marked, aortic and renal
Leiomyomata uteri

PATHOLOGIC DISCUSSION

Dr. MALLORY We found at autopsy an enlarged heart with thrombi in both auricles. In the right auricle a relatively large thrombus had apparently just broken loose before death and was found lying free in the cavity half way through the tricuspid valve, another beat into the pulmonary artery and produced in instantaneous death. Previous smaller emboli had evidently broken off at earlier periods and there were infarcts at both left and right bases. The thrombi in the left auricle were distinctly smaller but evidently from them also numerous emboli had escaped producing infarcts in the spleen, half of one kidney and in the brain. The last one in the brain obstructed the left side of the circle of Willis and I think was the immediate cause of death. We found also on the right side of the brain in the parietal lobe, behind the fissure, a large area of softening, one convolution wide which measured 5 centimeters in length. I think that represents the first of her emboli six years ago, following which she at times had abnormal sensation in that arm.

I cannot substantiate Dr. Breed's prediction

of coronary lesions. The coronaries were practically free from atheroma. Neither can I settle the question of the friction rubs—there was both pericarditis and pleuritis.

Dr. WHITE The question comes up here about the significance of bundle branch block in the absence of a history of angina pectoris or of coronary thrombosis. It has become customary now to regard such bundle branch block in older patients as evidence of a localized defect of the coronary circulation, which I believe to be a correct view. The blood supply to the bundle branches is carried on by very small vessels and one would have to search extremely carefully to determine the presence or absence of infarction in such very small areas. Certainly a large proportion of patients with bundle branch block do not have large infarcts at the apex or base of the left ventricle, because the blood supply to these various regions is not exactly the same. I do not think, therefore, that we can say that there was no occlusion of the small coronary vessels in this case.

Dr. MALLORY I agree that it would be virtually impossible to rule out an obliterative lesion of one of the very small arterial branches

CASE 21242

PRESENTATION OF CASE

First Admission. A fifty two year old American instructor entered complaining of burning micturition.

Two years before entry he developed abdominal pain after each meal which was in part relieved by belching. The pain gradually became sharper and occasionally radiated to the left groin. It was often so severe that it would cause him to double up or even wake him at night. Approximately one year before entry he noticed that hematuria occurred after each attack. A physician found "gravel" in his urine and prescribed medicine. At about this time he developed frequency and nocturia, about four to five times. His urine was cloudy. There was no incontinence. During the past two years he had had dysuria and difficulty in starting his stream. Approximately eight months before entry a bladder tumor found by cystoscopy was removed. The pathologic diagnosis was papillary carcinoma with a low grade malignancy. The operation relieved his symptoms to a great extent and since then there were no serious attacks of abdominal pain. The urine remained free from blood and pus, but the nocturia, frequency and difficulty in starting the stream continued. He remained in bed for about two months. One month before entry a small area of the bladder was cauterized. He entered this hospital for x ray treatment.

He had poliomyelitis at the age of four which had produced shortening of his right leg. He

had mild diabetes for the past twenty years which was easily controlled by diet

The family and marital histories are non-contributory

Physical examination showed a well developed and nourished man in no acute pain. The heart and lungs were negative. The abdomen was soft and showed a small suprapubic scar. The right thigh and calf muscles were atrophied. The right leg was shorter than the left. The knee jerks were absent on the right.

The temperature, pulse and respirations were normal.

The urine was slightly cloudy and had a specific gravity of 1.018, a slight trace of albumin and no sugar. The sediment was loaded with white blood cells and bacteria.

He was given a series of x-ray treatments and was discharged six days after admission.

Second Admission, five months later.

For the first two weeks he had slight aggravation of his symptoms, but then he gradually improved. His urinary stream became stronger. There was no dysuria although he did have some frequency and nocturia, every two hours during the day and every hour during the night. His strength improved and he gained about six pounds. His appetite was good. Two months before entry, however, he began to go downhill. He lost weight and strength. His dysuria recurred. His urine contained bright red blood evenly distributed throughout the stream without clots. During this two month period he had a constant dull pain in the left lower back which radiated to the hip and groin. During the past month he had shaking chills almost every day, especially at night.

Physical examination showed marked left costovertebral tenderness. Anteriorly the region of the left kidney was tender. The abdomen was somewhat distended. There was a small right inguinal hernia.

The temperature was 99°, the pulse 110. The respirations were 20.

Examination of the urine showed a slight trace of albumin and no sugar. The sediment contained about 50 red blood cells per high power field and numerous bacteria. The blood showed a red cell count of 3,800,000, with a hemoglobin of 60 per cent. The white cell count was 9,600, 85 per cent polymorphonuclears. The stools were negative. The nonprotein nitrogen of the blood was 20 milligrams.

X-ray examination of the pelvis and lumbar vertebrae showed no evidence of metastatic disease. A flat abdominal film showed a small rounded area of density in the course of the left ureter just below the transverse process of the fourth lumbar vertebra. The chest showed numerous metastatic nodules in the lung without evidence of metastases in the spine or ribs. An intravenous pyelogram showed that the

right kidney excreted the dye normally. No dye was excreted by the left kidney, which was slightly larger than the right. The bladder appeared small and irregular, particularly on the left. An attempt at injection of the left kidney pelvis was unsatisfactory, almost all the dye returning to the bladder.

He had a urinary residual of 5½ ounces for which he was put on constant drainage. The costovertebral pain continued and he was given deep x-ray treatment over the lumbar spine and pelvis to control the pain if it were due to metastases. Three weeks after admission a prostatic punch operation was performed, removing approximately 13 grams of tissue from around the bladder outlet. One week later a cystoscopic examination showed recurrence of the tumor on the back wall of the bladder and also a pedunculated growth in the region of the opening of the left ureteral orifice, which could not be found. He ran a slightly elevated temperature, gradually failed and died approximately seven weeks after admission.

DIFFERENTIAL DIAGNOSIS

DR. GEORGE G. SMITH: I suppose the x-ray treatment was intended to be directed at a recurrence of the bladder carcinoma. It does not say why he was to have x-ray treatment but that is the only assumption that I can make.

In summary of the first admission, the thing that strikes me as being of interest is the matter of this abdominal pain which he developed after each meal and which was relieved by belching. It is a little difficult to see how that can be related to the condition of carcinoma of the bladder. A duration of two years for a pain of that sort is rather unlikely, if the pain were due to any malignant condition, because malignancy usually advances pretty rapidly.

It is interesting to speculate whether the deep x-ray therapy had been the factor that caused the improvement in his bladder symptoms. I wish I felt that it would do that. But so far our experience with carcinoma of the bladder treated by x-ray has been rather unsatisfactory. I was discussing this with Dr. Holmes yesterday and he told me of several cases he had seen that had been very definitely helped, but in general I think the results that we have had here have not been particularly hopeful. The difficulty is to get a sufficient dose of x-ray in the bladder to destroy the tumor cells. Carcinomas of the bladder are very radioresistant and require five to ten erythema doses in order to kill the cancer cells, and to get such a dose into the bladder by x-ray is a rather difficult feat to accomplish.

The occurrence of chills in connection with a urinary condition is always suggestive of imperfect drainage of the kidney. A pyelonephritis is, as you know, frequently accompanied by

chills and if they continue it usually means that one or the other kidney is not being adequately drained. There is some obstruction.

The nonprotein nitrogen is distinctly below normal, which certainly shows that at least one kidney was doing adequate excretory work.

X RAY INTERPRETATION

DR. AUBREY O. HAMPTON. Here is the first examination and this is the shadow described in the region of the left ureter. Here it is again five months later, at the same location with about the same density. After the intravenous injection the right kidney excreted dye, there is no excretion by the left. The left kidney outline was interpreted as large but rather indistinct. Then he had a retrograde pyelogram or an attempt at retrograde filling of the left kidney and the catheter would not go any higher than the margin of the sacroiliac joint. All the injected sodium iodide returned to the bladder and I do not know whether there is any in the left kidney pelvis. The shadow that we saw so well before is not seen at this time, I think perhaps due to the quality of the film. In the first film it was dense but did not quite have the density of calcium. That film was of excellent quality and would have shown wart or any soft tissue mass that happened to be present on the surface. Since I had seen the patient and knew that he had pain in the left side and since the catheter would not go up, I called this shadow a stone.

We did not at any time get a very satisfactory cystogram, but the bladder did not seem very abnormal and since the cystoscopy findings were available we did not need to examine the bladder carefully. The x-ray treatments that he received were only for the relief of pain. There was some doubt as to whether he had recurrent cancer in the bladder at the time he was treated. It had been removed by cautery. He was treated for pain and we gave him the so-called analgesic dose over the lumbar spine.

DR. SMITH. Will you show the chest films now?

DR. HAMPTON. This one was taken at the second admission but we get a better idea of one of the metastatic masses in this lateral view of the spine, a large round mass lying behind the heart and at the carina of the trachea. That is the lower margin of the main bronchus with the large mass there and numerous large irregular masses scattered over both lungs. He has a normal functioning colon in spite of the fact that it took three times the usual quantity of barium to fill it. He was able to evacuate normally so that there was no indication of megacolon.

DIFFERENTIAL DIAGNOSIS CONTINUED

DR. SMITH. We know now that there was an obstruction to the left ureter, whether it was stone or stricture or possibly some metastasis from his bladder. We know that he had metastases all through his lung and it seems reasonable to think that the chills that he had were due to the poor drainage of the left kidney. His right kidney has good function, which, as I said, accounted for the low nonprotein nitrogen. One kidney is perfectly adequate to scavenge the blood if it has a chance to work.

X-ray showed no metastases in the spine or pelvis but that does not necessarily rule them out as being a cause of pain. I do not see why it may not be reasonable to think that his pain was due to obstruction to his left ureter.

I should think it was evident, from the findings of metastases in the lungs and recurring tumor in the bladder, that one was dealing with a losing situation and was bound to be defeated. It would be interesting to know if this tumor really was grade one, that serves to bear out what I have come to believe, namely, that the grading of these bladder tumors is not of great importance in determining their malignancy. I think the ones graded one and two are not infrequently as malignant as those graded three and four. At least they kill the patient just as often.

I should think that at autopsy there would be a pyonephrosis on the left with a completely obstructed ureter. Dr. Hampton said he did not think that the shadow was dense enough to be that of a stone and consequently that makes us feel that we had better be a bit "cagey" and suggest something else, such as stricture and metastatic deposit, but he certainly had stricture in the ureter. I think he has enough to kill him in that he was full of metastases and probably had a left pyonephrosis.

CLINICAL DISCUSSION

DR. TRACY F. MALLORY. Dr. Barney have you any comment?

DR. J. DELLINGER BARNEY. I was just wondering whether the tumor in the bladder and the obstruction in the ureter on the left side might have been caused by a primary tumor in the pelvis of the kidney with metastases from that to the lung and along the course of the ureter into the bladder. We do not know the location of the first bladder tumor which was excised, apparently at another hospital but I think that is a thing that might be considered as a possibility simply because tumors of the bladder which metastasize to the lungs are not common whereas such metastases are more common from a kidney tumor.

CLINICAL DIAGNOSES

Carcinoma of bladder, recurrent
Pyelonephritis

DR. GEORGE G. SMITH'S DIAGNOSES

Recurrent papillary carcinoma of the bladder
with pulmonary metastases
Left pyonephrosis

ANATOMIC DIAGNOSES

Papillary carcinoma of the left renal pelvis
with invasion of the ureter, renal vein and
spermatic vein, and metastases to the
bladder, lungs, liver and retroperitoneal
glands

Syringomyelia cavity of lumbar cord
Old poliomyelitis?
Atrophy of right leg

PATHOLOGIC DISCUSSION

DR. MALLORY The autopsy completely bears out Dr. Barney's line of reasoning. We found a large tumor of the left kidney, of the shaggy papillomatous character found in primary papillary carcinomas of the renal pelvis, an impression entirely confirmed by the histologic examination. It is characteristic of such tumors to extend downward along the ureters which may become completely filled throughout their length and implantations are by no means rare in the bladder mucosa. Radical operations which offer any hope of cure in this type of cancer require the resection of the entire ureter and

of its orifice in the bladder. In my experience, however, these tumors show relatively little tendency to invade the renal parenchyma. In this case, however, the kidney was completely replaced by a huge tumor mass, and the tumor had actually, like a hypernephroma, invaded the renal vein along which it was growing like a tumor thrombus. It had even started to grow down the spermatic vein as hypernephromas so often do. Metastases were of course found in the lung and were also present in the liver and the retroperitoneal glands.

The question in this case is of course that of the relationship of the various tumor masses. Was it primary in the bladder and are all the others secondary deposits? I agree with Dr. Barney that this seems improbable. Were there two primary tumors, one in the bladder and another in the pelvis of the kidney? I cannot rule out the possibility though I see no need of such an assumption. Was it primary in the kidney pelvis? Everything which we found is perfectly consistent with such a hypothesis though it is remarkable that the primary growth was so long silent.

The autopsy served further to cast doubt upon the diagnosis of old poliomyelitis which had been made to account for his atrophic leg. Dr. Kubik found a syringomyelic cavity in the lower lumbar cord which could certainly have explained the neurologic abnormalities. There was, however, some apparent diminution in the number of anterior horn cells so that he did not feel that he could rule out poliomyelitis entirely.

The New England

Journal of Medicine

SUCCESSOR TO

THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1838

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

COMMITTEE ON PUBLICATIONS

R. L. LEE, M.D., Chairman HOMER GAGE, M.D.
R. B. OSOOND, M.D. R. M. SMITH, M.D.
F. H. LANEY, M.D.

EDITORIAL STAFF

REO HUNT, M.D. STEPHEN ROBINSON, M.D.
JOHN P. BUTTERFIELD, M.D. HANA ZINER, M.D.
GEORGE R. MITCHELL, M.D. BENJAMIN WHITE, PH.D.
FRANK H. LANEY, M.D. HENRY R. VINT, M.D.
STURGEON WARREN, M.D. ROBERT N. NYE, M.D.
GEORGE L. TORREY, JR., M.D. ROBERT M. GIBSON, M.D.
C. GUY LANEY, M.D. CHARLES C. LUND, M.D.
WILLIAM A. ROOPER, M.D.

WALTER F. BOWEN, M.D. Managing Editor

ASSOCIATE EDITORS

GEORGE G. SMITH, M.D. WILLIAM B. FROTHINGHAM, M.D.
JOSEPH GARLAND, M.D.

THE NEW HAMPSHIRE MEDICAL SOCIETY

PUBLICATION COMMITTEE

CARLTON R. METCALF, M.D. HENRY H. AMES, M.D.
WARREN H. BUTTERFIELD, M.D.

THE VERMONT STATE MEDICAL SOCIETY

PUBLICATION COMMITTEE

WILLIAM G. RUCKER, M.D. C. F. DALTON, M.D.
L. H. ROSS, M.D.SUBSCRIPTION TERMS: \$8.00 per year in advance postage paid
for the United States Canada \$7.00 per year \$6.00 per year
for all foreign countries belonging to the Postal UnionMaterial for early publication should be received not later
than noon on Saturday Orders for reprints must be sent to
the Journal office 8 FenwayThe Journal does not hold itself responsible for statements
made by any contributorCommunications should be addressed to The New England
Journal of Medicine 8 Fenway Boston Mass.THE ANNUAL MEETING OF THE
MASSACHUSETTS MEDICAL SOCIETY

THE One Hundred and Fifty Fourth Annual Meeting of the Massachusetts Medical Society has passed into history. It stands as one of the most successful and important official functions of this organization because of a registration of 1,821 Fellows, many invited guests, a scientific exhibit which portrayed the important accomplishments of medicine in this Commonwealth, and problems before the profession which are awaiting solution.

The papers and discussions submitted to the several sections represented the best possible treatment of the subjects scheduled, and constituted comprehensive postgraduate education on a broad scale.

In the Shattuck Lecture Professor Galbreath discussed the problems involved in dealing with sprains and dislocations and described the methods employed in treating these disabilities. This address was most instructive, and held the attention of the audience throughout. It will

be published in the *Journal* as early as possible.

At the Council Meeting the following officers were elected for the ensuing year: Charles E. Mongan, President, Channing Frothingham, Vice President, Alexander S. Begg, Secretary, Charles S. Butler, Treasurer, and Reginald Fitz, Orator. Further reference to these officers appears below.

The attendance was unusually large, and close attention was given to every item on the agenda. With no prolonged discussion, the reports of the committees were approved.

The invitation from the Hampden District to hold the next annual meeting in Springfield was promptly accepted, undoubtedly because of the recollection of the success of a previous meeting held in that city and the reputation of its doctors and institutions which gives assurance of an enjoyable and profitable occasion.

The Annual Meeting of the Society also attracted a large attendance to hear the address of the retiring President, the Oration of our recently deceased Fellow, Dr. Brace W. Pad dock of Pittsfield which was well delivered by his son who is now a student in the Harvard Medical School and to consider an important matter which had been dealt with by the Committee on Ethics and Discipline and a Board of Trial. This has been the subject of controversy and will be considered by a large committee according to a resolution adopted. Final action was postponed to a subsequent meeting of the Society after the conclusions of the committee will have been received.

The Proceedings of the Council and the Society will be published as soon as they are presented to the *Journal* by the Secretary. They warrant careful study by every Fellow in order that the history of the Society may be kept clearly in mind.

THE OFFICERS

THE PRESIDENT—Dr. Charles Edward Mongan brings to the office the results of a long and concentrated study of medicine and its adaptation to human affairs.

He was born in Somerville, Massachusetts, of ancestors who came to that city more than one hundred years ago. He was educated in the public schools of his native city, later graduating from Boston College with the degrees of A.B. and A.M. For three years he taught school in Palmer, Massachusetts. He then entered the Harvard Medical School and received his M.D. degree in 1892. Following this training he engaged in postgraduate study in obstetrics and gynecology, first in the Rotunda Hospital, in Dublin, Ireland and afterward in Guy's Hospital, London, under Hale White with service in the Main Hospital and Out Patient Depart



CHARLES E. MONGAN
President



CHANNING FROTHINGHAM
Vice President



ALEXANDER S. BEGG
Secretary



CHARLES S. BUTLER,
Treasurer

ment under W. Arbuthnot-Lane. Other studies included courses under David Ferrier at the London Hospital for Nervous and Epileptic Patients.

On his return to America he engaged in practice in Somerville and was soon appointed to the staff of the Somerville Hospital and the Holy Ghost Hospital for Incurables at Cambridge.

Dr. Mongan is a Fellow of the American Medical Association and has represented the Massachusetts Medical Society in the House of Delegates since 1921. His election to the Council of the State Society has been without interruption since 1910. During this period he has served on important committees and is credited with the revival of the very active Section of Obstetrics and Gynecology after a dormant period of fifteen years. Other committees which owe much to his influence are that on Radiology and Physiotherapy and that on Public Relations. For the past twenty years he has devoted much time to the study of medical economics and mortality statistics and has served on important committees of the House of Delegates of the A. M. A. He is married and lives with his family at 24 Central Street, Somerville.

THE VICE-PRESIDENT—Dr. Channing Frothingham is Physician in Chief of the Faulkner Hospital, Jamaica Plain. He was born in Boston in 1881. His premedical education was acquired in Harvard College, and his A. B. degree was conferred in 1902. He graduated from the Harvard Medical School in 1906. Dr. Frothingham was Medical House Officer, Boston City Hospital, 1906-07, Assistant Visiting Physician, Carney Hospital, Out Patient Department, Boston, 1908-12, Secretary, Faculty of Medicine, Harvard, 1908-13, Assistant in Theory and Practice of Physics, Harvard Medical School, 1908-12, and Instructor in Medicine, 1913-22. Assistant Professor of Medicine, Harvard, 1922-28, Associate Clinical Professor of Medicine, Harvard, 1928-33, and Chairman, Department of Medicine, 1928-33. He was commissioned Lieut. Col., M. C. U. S. Army, serving from June 1, 1917 to December 5, 1918 at Camp Devens. He served as Physician, Peter Bent Brigham Hospital, 1912-32, and since then Physician in Chief, Faulkner Hospital and Consulting Physician, Peter Bent Brigham Hospital.

THE SECRETARY—Dr. Alexander S. Begg, Dean and Waterhouse Professor of Anatomy of the Boston University School of Medicine, was born in 1881 at Council Bluffs, Iowa. His premedical education was acquired at Drake University, Des Moines.

He graduated in medicine from Drake University College of Medicine in 1907 and soon after was appointed instructor in pathology and

assistant professor in histology and embryology, later being advanced to full professorship in this department.

In 1913 he came to Boston to fill the position of instructor in comparative anatomy at the Harvard Medical School, and in 1916 was elected to the position of Dean of the Harvard Graduate School of Medicine. He resigned this position to take over his duties at Boston University as defined above.

During the World War he served in France as Commander of Base Hospital 88, until he returned to Boston in 1919. He was appointed Acting Secretary by President Robey to fill the vacancy caused by the death of Dr. Burrage which occurred January 26, 1935.

THE TREASURER—Dr. Charles Shore Butler was born in Boston in 1870 and after an early education in the private schools of this city he entered Harvard College and graduated in 1893. He took his M.D. degree from the Harvard Medical School in 1898, subsequently serving an internship in the Massachusetts General Hospital and later was appointed on the staff as Accident Room Surgeon. For seven years he was engaged in teaching as assistant in anatomy at the Harvard Medical School.

During the World War he served as surgeon in the French Army in the years 1915, 1916 and 1917. In 1917 he returned to Boston retiring from practice in that year and devoted his time to his personal affairs.

Having interest in financial matters he was regarded as especially qualified to fill the position of Treasurer of the Society, and was elected in June 1931 when his predecessor, Dr. A. K. Stone, resigned. His administration of this office has been outstanding and he has been his own logical successor each year since his first election.

THE ORATOR—Dr. Reginald Fitz of Boston was elected Orator to deliver the Annual Discourse in Springfield in 1936.

Dr. Fitz is Chairman of the Committee on Medical Education and Diplomas, and Chairman of the Executive Committee of the Committee on Postgraduate Instruction of the Massachusetts Medical Society.

He is a member of the Council on Medical Education and Hospitals of the American Medical Association. His local professional activities include service on the Staff of the Peter Bent Brigham Hospital and Assistant Professor of Medicine of the Faculty of the Harvard Medical School.

SOCIAL FEATURES

The social features of the meeting were carefully planned by the President, the Committee of Arrangements, the Secretary, the Treasurer,

and a Committee of Ladies, so that the most important event, that of the Annual Dinner, was an enjoyable affair. The accommodations were well planned and the menus and service most satisfactory.

President Robey sustained his reputation as an exemplar of the art of toastmaster, and showed rare judgment in his selection of after-dinner speakers. Although His Excellency, the Governor, was unable to attend, he sent his cordial well wishes through an associate in State Service.

His Honor, Mayor Mansfield, gave an instructive exposition of the intricacies incident to balancing the municipal budget and explained the relation of the tax limit and the tax rate. He expected that the tax rate of Boston could be reduced slightly and indicated his intention of working to that end. He is especially ambitious to improve the financial condition of the city and is confident that business is improving. He is also interested in bettering the health conditions of Boston and complimented the doctors for their efforts in this field. He assured the Society that he had an understanding of some of its problems, for he is a registered pharmacist and previous to his study of law was thereby brought into definite relations with the medical profession. He explained the embarrassment imposed by the control of Boston's affairs by the State under present laws. His address was interesting from many angles, and his suggestion that there should be many statues of distinguished Boston doctors in our public parks was appropriate because other municipalities have shown interest in keeping the names of these benefactors before the people.

Mr. Roscoe Pound, Dean of the Harvard Law School, after witty references to his early experiences on an "insane commission" in another state, delivered an exposition of his interpretation of the changing conditions in the civic life of this country as shown in his contrast of the pioneer age when individuals and communities were competent to meet practically all of the needs of families and small towns with the development of specialists in personal service and great business organizations which have driven small producers out of industry.

Equally significant are the changes which have taken place in the professions, for early in our history the local lawyer, clergyman or doctor was supreme in his field, but now there is less individual influence, for it has given way to combinations of men and methods. Certain forms of organizations are giving way to others, as shown by the power of political over religious bodies, and the question is before us as to whether the time is coming when the professions will be controlled by legislation and the people must decide whether voluntary associa-

tion may refuse to surrender to a "political mess of pottage."

It is quite impossible to report adequately the reasoning and shades of expression in this remarkable address which was a reflection of profound thinking as applied to the ethical and civic problems of society.

Dr. Douglass V. Brown, Assistant Professor of Economics of Harvard University, gave an interesting résumé of his study of the economic conditions affecting the practice of medicine, including patients as well as doctors, during a recent tour of the country. He found that in most sections many doctors were not receiving satisfactory incomes and many people were not getting adequate medical care. The underlying conditions are so complex that much time and study will be required to enable one to make a sound analysis of the relative importance of the contributory causes, and until further knowledge is acquired it would be futile to prescribe remedies. He urged physicians to keep themselves informed of the experiments under way throughout the country which are designed to solve adverse conditions, because plans must be made which are adaptable to local needs. No one scheme will have general application. The attitude of the laity must be taken into consideration, for there is confusion in the minds of many people as to where to seek the required service. For example, group payment for hospital care appears to be popular in some places but is not regarded favorably in others. Several different voluntary and legislative plans were referred to, but, while he hoped to submit specific recommendations as to those worthy of trial, the attitude at the present time may properly be that human ingenuity will eventually solve the most pressing needs.

The Rev. Dr. Osgood based his address on the records of a doctor of the Revolutionary Era found in an old book among the relics hidden away in an attic of a house occupied by his wife's ancestors. The pages of hand-made paper recorded a long life of service in the seventeenth century. In contrasting the therapy of that period with that of the present, he found many opportunities for the display of his wit which was a happy diversion for doctors who are constantly dealing with the most serious affairs of life. His great interest in human welfare and the adaptation of his talents to solving the complexities of modern life inspired him to bursts of eloquence and expressions of sympathy for those who require guidance in meeting the depressing influences of disease and the problems of the present age.

At the conclusion of Dr. Osgood's address, President Robey introduced Dr. Charles E. Mongan, the President-Elect, who expressed his appreciation of the honor conferred upon him by the Society. He gave a brief history of his

many years of service on committees, and his participation in the deliberations of the Council, and assured the Fellows that he would concentrate attention on the many questions now before the profession and the people.

He appeared to be confident that a united and virile Society could meet the expectation of organized medicine in solving the problems now before the nation relating to the economics and adequacy of medical care. To this end he sought the united support of every member of the Society. The response of the meeting was evidence of its coöperative spirit.

Any report of the Annual Meeting would be incomplete without an acknowledgment of the excellent organization and work of the Committee of Ladies under the chairmanship of Mrs. William H. Robey. To this Committee was given the function of entertaining the wives and other members of the families of the Fellows. In response to invitations issued by this Committee, three hundred and eighty ladies registered and were entertained at teas, a buffet supper, a trip to Concord with a luncheon, a visit to the Gardner Museum, social service functions at the Massachusetts General Hospital and other places of interest. These visiting ladies were also invited to attend the Shattuck Lecture, moving pictures, and to hear the post-prandial speakers. The cordiality exhibited by this Committee was appreciated and has established a custom which will be a regular feature of future meetings.

The Committee of Arrangements has placed the Society under great obligation for the energy and judgment displayed in its attention to all details and has established a standard of executive excellence which will be a model for the future. The Chairman, Dr. W. M. Shedden, retires with a reputation of devotion to an arduous task and his associates on the Committee have shown a spirit of coöperation which must have been a great comfort to him. His successor, Dr. W. R. Morrison, is planning to emulate the example set by his chief. He will have the assistance of men of ability and experience in this field.

The Scientific and Commercial Exhibits were well staged and those in charge were pleased with the accommodations prepared for them.

We look forward to the Springfield Meeting with pleasant anticipation.

Sixty-one men played Golf at the Belmont Springs Country Club Wednesday, June 5, in the Tournament sponsored by the Massachusetts Medical Society. The day was cloudy and the skies threatening, which undoubtedly kept a number of members from attending.

In Class A the best low gross score was won by Dr. Henry Godfrey of Newton. Dr. Joseph Carey won low net in this division. In Class B Dr. A. J. A. Campbell got the low gross score and Dr. Allan Davis came in first on low net in this class. In the Kickers Tournament the prizes were won by Dr. Samuel L. Poplack of Taunton, Dr. Walter Burrage, Dr. William Noonan, Dr. David Green, Dr. Paul Gustafson, Dr. Gerald Doherty, Dr. Sidney Wiggin and Dr. Charles Wilinsky. The Guest prize was won by one of the three guests present, Dr. Mackey, a dentist.

The prizes^o were elaborate and well worth the players' efforts. They were generously contributed by the following: Brewster Ambulance Service, Charles W. Broadbent Co., Codman and Shurtleff, Inc., Coward Shoe Co., Inc., Crosbie Macdonald, Crowley & Gardner, Kenmore Pharmacy, Inc., E. F. Mahady Co., Peter F. Rogerson, Philip Morris, Physician-Dentist Service, Inc., Surgeons & Physicians Supply Co. and Thomas W. Reed Co.

We are informed that the prizes were won by amateurs and not by the more professional golfers. The handicaps were ranged so as to give the less skillful a fair opportunity to secure a prize.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

BENEDICT FRANÇOIS G. A.B., A.M., Ph.D., Sc.D., Honorary M.D. University of Würzburg 1932. Director of the Nutrition Laboratory of the Carnegie Institution of Washington, Boston, Mass., since 1907. His subject is "Old Age and Basal Metabolism." Page 1111. Address 29 Vila Street, Boston, Massachusetts.

BLOOMBERG, MAXWELL H. M.D. Tufts College Medical School 1924. Orthopedic Surgeon to Out Patient Department, Carney Hospital and Beth Israel Hospital. Orthopedic Surgeon to Greater Boston Bickur Cholim Hospital, Roxbury Mass. His subject is "Report of a Case of Primary Pneumococcus Arthritis." Page 1122. Address 21 Bay State Road, Boston, Massachusetts.

ROBERTS STEWART R. A.B. B.S., S.M., M.D. Emory University 1900. Professor in Clinical Medicine, Emory University. Physician to Emory University Hospital. Ex-President, Southern Medical Association. His subject is "The Social Trends Underlying Health and Hospital Insurance." Page 1123. Address 708 Juniper Street N.E., Atlanta, Georgia.

SHILDON RUSSELL F. A.B., M.D. Harvard University Medical School 1911. Assistant Anes-

thetist, Massachusetts General Hospital and Massachusetts Eye and Ear Infirmary His subject is "Progress in Anesthesia in 1934" Page 1129 Address 31 Pinckney Street, Boston, Massachusetts

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY*

C J KICKHAM, M.D., R S TITUS, M.D.,
Chairman, Secretary,
524 Commonwealth Ave., 472 Commonwealth Ave.,
Boston, Mass Boston, Mass

THE TREATMENT OF PATIENTS IN ECLAMPTIC CONVULSIONS

This serious complication of pregnancy concerns both the mother and the baby, and its intelligent management is essential. Fortunately, because of wider use of prenatal care through educational measures, it is becoming more uncommon.

There are still adherents to the surgical and radical treatment, in spite of the definitely lowered maternal and infant morbidity and mortality since the more general use of the medical or conservative treatment. Any disease of unknown etiology will surely have a varied treatment. On the whole, in accord with the practices of the majority of obstetricians, and disregarding radical measures here, the writer has used the conservative method with success.

The treatment recommended may be varied by the individual accoucheur, but the general plan is based on Stroganoff's (1909) and Fischer's (1916) methods. Naturally, one must differentiate eclampsia and hysteria, epilepsy, medicinal poisonings, uremia, meningitis or any disease presenting convulsions.

Eclampsia may occur

- 1 Before the onset of labor
- 2 During labor
- 3 After delivery

The treatment is similar at any time

1 Before the onset of labor

- (a) Hospitalization in a dark, quiet room, with constant supervision
- (b) Immediate control of convulsions. This can be accomplished by morphine sulphate grain $\frac{1}{4}$ - $\frac{1}{2}$ subcutaneously at once. One-fourth grain may be repeated in four hours or sooner until the respirations are down to fourteen per minute. Sodium amytal, phenobarbital, pentobarbital, pernocton,

chloral hydrate by rectum, luminal sodium and other sedatives are used instead of morphia.

- (c) Prevention of self-injury by gentle restraint and a padded mouth gag during a convulsion. Removal of false teeth
- (d) O₂ inhalation following a convulsion
- (e) For the reduction of the blood pressure and the edema of the brain and other tissues, and to promote diuresis, intravenous magnesium sulphate (20 cc of a 10 per cent solution) is recommended. This may be repeated every hour, being guided by the blood pressure readings and the control of the convulsions. No more than six to eight injections in twenty-four hours are advisable. If there is any sign of toxic effect from the magnesium sulphate evidenced by depression of the respiratory center, the effect may be combated by the intravenous injection of 5 cc. to 10 cc of a 10 per cent solution of calcium chloride.
- (f) Constant drainage by a self-retaining catheter with twenty-four hour intake and output record
- (g) If patient is vomiting, a Levin's tube is used through which a gastric lavage is done and 2 oz of concentrated magnesium sulphate solution is introduced into stomach for catharsis. Liquid food may be introduced.
- (h) To promote diuresis in addition to other agents and to spare the liver and reduce acidosis and decrease cerebral and general edema, 100 cc of a 50 per cent solution of glucose is used, which may be repeated three or four times a day. Occasionally, 500 cc of a 5 per cent solution is used instead.
- (i) Venesection is only rarely used
- (j) Institution of measures for the termination of the pregnancy, when the convulsions have been controlled. One should try to carry the patient to term, if the eclampsia occurs before the period of viability especially since labor is often initiated by eclampsia without interference. One should be guided by the condition of the cervix, the existence of disproportion between the passage and the passenger, the patient's condition and past history (para). The use of a Vorhees bag and rupture of membranes is recommended for induction of labor, but, not pituitrin, if delivery can occur per vaginam. Occasionally, cesarean section becomes necessary, because of disproportion, abnormal presentation, placenta previa, sep-

*A series of short selected articles by members of the Section will be published weekly.

Comments and questions by subscribers are solicited and will be discussed by members of the Section.

aration of the placenta, and heart des-
enso, but it has been firmly established
that routine cesarean section gives the
highest maternal mortality. The low
cervical cesarean is better and should
be done under novocain, with the aid
of N_2O and O_2 . Vaginal hysterotomy
has been done, but, the former is pre-
ferred.

2 During Labor

In addition to the above measures to con-
trol the convulsions, etc., one should al-
low the patient to deliver normally if
progress is rapid, using N_2O and O_2
during pains, or very conservative mea-
sures to terminate labor are employed
because the patient is safer if deliv-
ered. Episiotomy or prophylactic for-
ceps under local, spinal or caudal anes-
thesia are recommended. N_2O and O_2
is used too. Other less conservative
measures as version, mid and high for-
ceps may be necessary, but these de-
cisions must rest with the individual ob-
stetrician.

Accouchement forcé cannot be condemned
too strongly.

3 After Delivery

Eclampsia is rather uncommon at this
stage, but the above measures may be
instituted or continued especially since
there may be more or less permanent
renal damage. Venesection may be
used depending on the extent of bleed-
ing at the time of delivery. Close ob-
servation is necessary even for weeks
later, the patient being kept on a strict
nephritic régime with the urine and
blood pressure as indices of improve-
ment.

Other Methods of Treatment

1. To Stroganoff we owe the present conserva-
tive methods which are more or less
modifications of his original method.
In brief, they are based on the relief
of convulsions by sedatives with induction
of labor as a final measure if the former
is unsuccessful.

The Rotunda Hospital treatment is essen-
tially one of sedation and starvation
and colonic lavage.

Veratrum viride is still used occasionally
by some. Generally, it has been dis-
carded.

Spinal anesthesia, fluid limitation and
dehydration removal of blood plasma
and the reinfusion of corpuscles, and
intramuscular injections of liver ex-
tract cannot be relied upon as single
agents in the treatment of eclampsia.

MASSACHUSETTS LEGISLATIVE NOTES

House 717 Petition of Edward Carr that reports
of physicians of insurance companies and of hospi-
tals in connection with employees injured in indus-
trial accidents be open to inspection.

June 7 Enacted in House

House 1894 Resolve providing for an investiga-
tion and study by a special commission relative to
the establishment and administration of a system of
health insurance.

June 11 Joint Rules

House 1157 Petition of Henry J. Kennedy for es-
tablishment of a board of examination and registra-
tion to regulate the practice of chiropractic.

Is in the House Committee on Ways and Means

MISCELLANY

PROFESSOR CHARLES S. BURWELL'S APPOINTMENT

Dr. Charles Sidney Burwell, Dean Elect and Re-
search Professor of Clinical Medicine in the Har-
vard Medical School formerly Professor of Medicine
at Vanderbilt University has been appointed to the
staff of the Peter Bent Brigham Hospital Boston
as Physician where he will continue clinical inves-
tigations of heart disease.

WORCESTER HAS A TYPHOID PROBLEM

There have been reported seven definite diag-
nosed cases of typhoid fever in Worcester.

There have been two deaths originally ascribed
to causes other than typhoid fever but which now
have aroused the suspicion of having been caused
by this disease.

Examination of milk and food supplies has not in-
dicated the source of the disease and the attention
of the health authorities has been turned toward the
possible presence of a carrier in the city. With
water, milk and food supplies beyond suspicion the
probable explanation is that there is some apparent-
ly well person disseminating the specific germs.

NEGLECT OF PROPER TREATMENT OF CANCER

Dr. Carl Eggers, Director of Surgery in the Skin
and Cancer Division of the New York Post-Graduate
Hospital reports that the proper treatment of can-
cer is being neglected because of delayed diagnosis
by general practitioners and urges reference to ex-
ports in all doubtful cases. He set forth in a recent
address at the Bellevue-Lockville Health Centre
that many cases of cancer of the stomach and in-
testine are curable if diagnosed and adequately
treated in the early stages. He claims that many
operations are performed by men who are not suf-
ficiently well trained to engage in this type of sur-
gery.

CEREBROSPINAL MENINGITIS IN NEW YORK

The Department of Health of New York City reports the prevalence of epidemic cerebrospinal meningitis above the usual number of cases

TULANE UNIVERSITY OF LOUISIANA CELEBRATES ITS HUNDREDTH YEAR

During a four day fête, June 8-12, in connection with its commencement exercises, and in commemoration of its achievement of a full century of medical and other higher education, Tulane University of Louisiana celebrated its hundredth year with an elaborate program—which included the awarding of honorary degrees to thirteen outstanding Americans.

Not only was credit given to the Tulane School of Medicine for its notable contributions to medical research and clinical application and practice, but also for its large contribution to the health and well being of the people of the South, Southwest, and Central America, through the 6,500 and more doctors which Tulane has graduated during the century of its existence.

Located adjoining the great, state-operated Charity Hospital, in the port city of New Orleans, equipped with the most modern and expertly-planned medical plant in the South, with a faculty of more than 150 recognized medical experts, and with unexcelled facilities for practical, clinical teaching, the Tulane School of Medicine, and the Graduate School of Medicine presented a vivid contrast with the beginning one hundred years ago.

CORRESPONDENCE

A CRITICISM OF THE NEW ENGLAND JOURNAL OF MEDICINE

June 3, 1935

Editor, *New England Journal of Medicine*,

The *New England Journal of Medicine* was a leader in dispersing scientific facts for over a century. I think it is a shame to use this paper as a propaganda organ for half cooked world improvers. Certainly the paper on "Recent Changes in German Health Insurance under the Hitler Government" is neither medical nor scientific, but contains plenty of propaganda and is therefore unworthy to appear in our periodical. It is remarkable by omission of facts rather than by its statements. The statement, "it is highly significant that the medical profession has been given a more definite and distinctive participation in the conduct of sickness insurance than it has possessed in Germany up to this time," is false. One medical member on a big committee could not do much good even if he would be the chosen representative of the profession, as it is, he is appointed by political powers and represents them rather than the medical profession. The paper neglects to mention the fact that more than three thousand physicians were deprived of the only means available to them to make a living through the Health Insurance Panel Practice Act alone. The

first sentence of the last paragraph "A system of furnishing medical care which has lasted through two political revolutions and the great economic changes of the last fifty years, which has been steadily extended during this period, would seem to possess elements of inherent stability. It would seem to have answered a definite need of the people and given a substantial degree of satisfaction" is a dangerous misrepresentation. The people had never any thing to do in starting or modifying the insurance system. They were never asked if they were satisfied or dissatisfied. In my opinion the only thing proved by the survival of the German Health Insurance is, that State-Medicine once started, good or bad, will survive even revolutions. The fact so skillfully omitted by Dr Davis and Miss Kroeger that more than three thousand medical men were deprived of their means of supporting themselves should open the eyes of the American medical profession to one great danger of State Medicine. I hope, Mr Editor, that my comments will be published soon. I am only sorry that so much space has to be taken from the valuable scientific part of the *Journal* to refute a propaganda paper which never should have been published in the *Journal*.

Very truly yours,

JOSEPH MULLER, M.D.

28 Pleasant Street,
Worcester, Mass

RECENT DEATHS

FOSGATE—ELMER GILMAN FOSGATE, M.D., of Ashburnham, Mass., died Saturday, June 3, 1935, of heart disease after an illness of eight months. He was born in Winchester, N.H., on July 20, 1859, and was graduated from the Winchester high school. After a year's study in the New Hampshire State College he entered the medical school of Dartmouth College from which he received his degree of M.D. in 1888. He practiced in Rindge, N.H., from 1889 to 1895 when he removed to Ashburnham where he remained in the continuous practice of his profession until his death. He joined the Massachusetts Medical Society in 1895.

Dr Fosgate was the recipient of many honors from his fellow townsmen, having been chosen selectman, member of the board of health and school physician, holding the latter office at the time of his death. He was elected to the Massachusetts Legislature in 1912 and 1913. He was a member of the Massachusetts Medical Society, Worcester County selectmen's association and Ashburnham grange. Though previously affiliated with the Congregational Church he later joined the Federated Church in Ashburnham and was chosen a deacon for many years. He leaves a widow and one daughter, Hazel, who is a teacher in the public schools of Springfield, Mass.

Dr Fosgate was a constant attendant at the meetings of the Worcester North District Medical Society and was highly regarded by his confreres and residents of Ashburnham for his ability and his cour

teous manner. The funeral was held Tuesday June 11 from the Congregational Church in Ashburnham.

FRANCIS M. McMURRAY M.D., *Secretary*

SHAW—JOHN PORT SHAW M.D. of 11 Fuller Street with an office at 6 Main Street Brockton, Massachusetts died June 5 at his home after a long period of declining health. He was born in Markers, Durham County Ontario in 1858 the son of George and Elizabeth (Lee) Shaw.

After attending public schools in his native town he took premedical courses at Toronto University and graduated in medicine from Trinity Medical School an affiliate of Toronto University. He took postgraduate courses at St. Mary's Medical School and Hospital in London, receiving therefrom the M.R.C.S. degree. He then came to Brockton and in addition to conducting a large practice became interested in civic affairs and was especially active in the All Saints Episcopal Church in Whitman which grew from a small mission to an important representation of the Episcopal denomination.

He was prominent in Masonic Odd Fellows and Knights of Pythias Orders and was a former president of the Plymouth District Medical Society. He had held the same position in the Brockton Medical Society. Dr. Shaw was a Fellow of the Massachusetts Medical Society and the American Medical Association and a member of the Staff of the Brockton Hospital for twenty years retiring in 1924.

He is survived by his widow Mrs. Adelaide (Powers) Shaw and a sister Mrs. Margaret Rusk of Saskatchewan, Canada.

MYERS—SOLOMON MYERS M.D., formerly of the West End, Boston, and of late years of East Boston died January 18 1935. He was born in 1872 and graduated from the Harvard Medical School in 1900.

He gave much time and energy to the work of the Mt. Sinai Hospital which was the predecessor of the Beth Israel Hospital and was also on the Staff of the Chelsea Memorial Hospital. He had practiced in East Boston for the last thirty-two years.

He was a Fellow of the Massachusetts Medical Society the American Medical Association and a member of the East Boston Medical Society.

Besides his widow Mrs. Nettie Myers, he is survived by two daughters Minerva Myers and Zelma R. Myers and a son Sumner B. Myers A.B. (Harvard) at present a National Research Fellow in Mathematics at Princeton.

PURINTON—HERBERT HARMON PURINTON M.D. of Somersworth, New Hampshire died June 7 1934. He was born in Saco, Maine, in 1865. He was a graduate of Livingston Academy, Livingston, Maine and took his medical degree from Bowdoin Medical College in 1891. He was a member of the Massachusetts Medical Society and a Fellow of the American Medical Association. He held registration in Maine, New Hampshire, Massachusetts, Connecticut, North Carolina, Virginia, West Virginia,

Haiti and the West Indies. He was a member of the Masons, Odd Fellows and Red Men.

His widow Mrs. Marie Allen Purinton, a half brother Dana Purinton and a half-sister Ethel Purinton Case survive him.

BROWN—HENRY WILSON BROWN M.D. of 61 Broadway Haverhill, Massachusetts died at his home June 7 1935. He was born in 1855 at Grafton, Massachusetts, the son of Sewall Brown and Hannah (Winn) Brown.

He was an oculist and had practiced at 8 Welcome Street in the Ayer's Village Section. He graduated from the Albany Medical College in 1889.

FREEMAN—FRANKLIN WILLARD FREEMAN M.D. of Lynnfield Center, Massachusetts died December 5 1934. He was born in Needham, Massachusetts, October 23 1860.

He graduated from the University of Vermont Medical College in 1889 and took postgraduate courses at the Harvard Medical School. He first practiced in Newton Lower Falls for ten years then moved to Lynnfield Center where he lived and practiced to the time of his death.

He was a Fellow of the Massachusetts Medical Society and the American Medical Association.

HOLZMAN—JOSEPH HOLZMAN M.D. of Elm Hill Avenue, Roxbury, Massachusetts died June 3 1935. He was born in Russia in 1870, graduated from the University of Illinois College of Medicine in 1892 and soon after settled in Boston, first practicing in the West End and later moving to Roxbury. He was a Fellow of the Massachusetts Medical Society.

His widow, two daughters, a son, two brothers and a sister survive him.

GABOURY—GEORGE NAPOLEON GABOURY M.D., of 36 Forest Park, Springfield, Massachusetts with an office at 175 State Street, died at his home June 4 1935.

He was born in 1834 and graduated from the Harvard Medical School in 1910. He was especially interested in the diseases of children and in addition to his practice devoted much time to the study of mathematics and physics.

ELLAM—HERBERT W. ELLAM M.D., Vice President of the Worcester North District Medical Society died suddenly at his new home at 85 Nowell Road, Melrose Highlands, June 4 1935. He had moved to Melrose just two weeks previously having retired from practice in Gardner, Mass.

He was born in Clinton, September 3 1879, the son of John W. and Annie (O'Brien) Ellam. In 1886 his family moved to Southbridge where he attended the public schools, being valedictorian of his high school graduating class. He graduated from the Harvard Medical School in 1904 after a thorough hospital training at the Boston Floating Hospital and the Worcester City Hospital, he came to

- 6 Repeated frequent attacks of biliary colic
- 7 Contracted and thickened gall bladder

The last two conditions warrant exploration of the ducts because they are evidence of long-standing chronic disease and infection, and it is in these cases that stones in the common and hepatic ducts are most likely to occur.

Two of the secondary operations in this series were necessitated by what seem to us to be errors of judgment at the first operations.

One patient had had one attack of acute cholecystitis lasting ten days some months previously, and one attack of typical biliary colic the day before admission. He was jaundiced at the time of operation. The gall bladder was small and contained eight small stones. Cholecystectomy with drainage was done. The appearance of the common duct was not described in the operative note. Drainage of bile persisted, through the wound, and two months later an attempt was made to explore the common duct. There was a considerable subacute inflammatory reaction, and although stones were felt in the common duct, attempts to remove them were unsuccessful. A third operation was necessary which is described later in this paper.

We feel that there was sufficient cause for exploration of the common duct at the first operation, and failure to do so constitutes an error of judgment.

The other patient had had repeated attacks of biliary colic over a period of four years, becoming more frequent and more severe. There had been no jaundice. At operation the gall bladder was full of stones, and there were stones in the cystic duct. The common duct was not explored and is not described in the operative note. She had no symptoms for twelve months, but then began to have frequent attacks of typical biliary colic. A secondary operation was done thirteen months after the first operation. The common duct was moderately dilated, and it was impossible to pass an instrument into the duodenum. Consequently, the duodenum was opened and retrograde explorations of the common duct performed. A small stone was found impacted in the ampulla and was removed. It is reasonable to say that in view of the long history of repeated attacks of colic the common duct should have been explored at the first operation, and that the stone was present at that time. We therefore classify this as an error of judgment.

ERRORS OF TECHNIQUE

In ten instances in this group of fifteen secondary operations further surgery was necessary because of errors of technique at the previous operation. By this we mean that the operative procedure was correctly chosen but inadequately performed in that stones were left

behind and were found only by a subsequent operation. This may happen at the hands of the best of surgeons, but nevertheless it constitutes an error of technique. It is probable that stones in the bile ducts found at later operations were, in all probability, present at the former operation. The possibility that stones may form in the bile ducts themselves cannot be definitely ruled out, but we believe that cases in which this happens are at least exceedingly rare and that for practical purposes they may be disregarded.

It is interesting to study the symptoms of these ten patients in the interval between operations, with the above possibility in mind. The average interval between the operation and recurrence of symptoms was three months, and the longest asymptomatic period was six and one half months. In seven of the ten instances the interval between operations was seven months or less. In the other three cases the secondary operations followed the primary ones at intervals of seventeen months, three years and five years. These three patients had been symptom-free only three, one, and three and one-half months respectively after the first operation.

It is well known that stones may be present in the bile passages without giving symptoms, even for long periods of time, and it would seem that the above figures would favor the presence of stones overlooked at the first operation rather than the formation of new stones between the operations.

Six of these ten cases were patients in whom the common duct was explored at the first operation, but stones were found in only two of them. After a few months symptoms recurred and after an interval, varying from four months to five years, stones were removed from the common duct in each case. There is no reason to describe each of these cases in detail.

One patient had one stone removed from a dilated common duct and cholecystectomy performed at the first operation. Attacks of typical biliary colic occurred at monthly intervals for three years. At that time three stones were removed from the common duct. She drained bile profusely through the drainage tube in the common duct after the operation and failed steadily. She died twelve days after the operation. This case is interesting for three reasons. First, because at autopsy stones were found in the common and hepatic ducts. Secondly, because it constitutes the only mortality in this group of fifteen secondary biliary tract operations, and thirdly because no attempt was made to refeed the bile drained for twelve days after the operation. On the twelfth day a jejunostomy for the purpose of replacing bile in the gastrointestinal tract was performed, but the patient died three hours later. Needless to say this

teous manner. The funeral was held Tuesday, June 11 from the Congregational Church in Ashburnham.

FRANCIS M. McMURRAY M.D. Secretary

SHAW—JOHN PORT SHAW M.D. of 11 Fuller Street with an office at 6 Main Street, Brockton Massachusetts died June 6 at his home after a long period of declining health. He was born in Manvers Durham County Ontario in 1858 the son of George and Elizabeth (Lee) Shaw.

After attending public schools in his native town, he took premedical courses at Toronto University and graduated in medicine from Trinity Medical School an affiliate of Toronto University. He took postgraduate courses at St. Mary's Medical School and Hospital in London receiving therefrom the M.R.C.S. degree. He then came to Brockton and in addition to conducting a large practice, became interested in civic affairs and was especially active in the All Saints Episcopal Church in Whitman which grew from a small mission to an important representation of the Episcopal denomination.

He was prominent in Masonic, Odd Fellows and Knights of Pythias Orders and was a former president of the Plymouth District Medical Society. He had held the same position in the Brockton Medical Society. Dr. Shaw was a Fellow of the Massachusetts Medical Society and the American Medical Association and a member of the Staff of the Brockton Hospital for twenty years retiring in 1931.

He is survived by his widow Mrs. Adelaide (Powers) Shaw and a sister Mrs. Margaret Rusk of Saskatchewan Canada.

MYERS—SOLOMON MYERS M.D. formerly of the West End Boston and of late years of East Boston died January 18 1935. He was born in 1872 and graduated from the Harvard Medical School in 1900.

He gave much time and energy to the work of the Mt. Sinai Hospital which was the predecessor of the Beth Israel Hospital and was also on the Staff of the Chelsea Memorial Hospital. He had practiced in East Boston for the last thirty two years.

He was a Fellow of the Massachusetts Medical Society the American Medical Association and a member of the East Boston Medical Society.

Besides his widow Mrs. Nettie Myers, he is survived by two daughters Minerva Myers and Zelma R. Myers and a son Sumner B. Myers A.B. (Harvard) at present a National Research Fellow in Mathematics at Princeton.

PURINTON—HERBERT HARMON PURINTON M.D. of Somersworth New Hampshire died June 7 1934. He was born in Saco Maine, in 1865. He was a graduate of Livingston Academy Livingston, Maine and took his medical degree from Bowdoin Medical College in 1891. He was a member of the Massachusetts Medical Society and a Fellow of the American Medical Association. He held registration in Maine New Hampshire, Massachusetts Connecticut North Carolina, Virginia, West Virginia,

Haiti and the West Indies. He was a member of the Masons Odd Fellows and Red Men.

His widow Mrs. Marie Allen Purinton a half brother Dana Purinton and a half-sister Ethel Purinton Case survive him.

BROWN—HENRY WILSON BROWN M.D., of 61 Broadway Haverhill Massachusetts died at his home June 7 1935. He was born in 1855 at Grafton, Massachusetts, the son of Sewall Brown and Hannah (Winn) Brown.

He was an oculist and had practiced at 8 Welcome Street in the Ayers Village Section. He graduated from the Albany Medical College in 1889.

FREEMAN—FRANKLIN WILLARD FREEMAN M.D. of Lynnfield Center Massachusetts died December 5 1934. He was born in Needham Massachusetts October 23 1860.

He graduated from the University of Vermont Medical College in 1889 and took postgraduate courses at the Harvard Medical School. He first practiced in Newton Lower Falls for ten years then moved to Lynnfield Center where he lived and practiced to the time of his death.

He was a Fellow of the Massachusetts Medical Society and the American Medical Association.

HOLZMAN—JOSEPH HOLZMAN, M.D., of Elm Hill Avenue, Roxbury Massachusetts died June 3 1935. He was born in Russia in 1870 graduated from the University of Illinois College of Medicine in 1892 and soon after settled in Boston, first practicing in the West End and later moving to Roxbury. He was a Fellow of the Massachusetts Medical Society.

His widow two daughters a son two brothers and a sister survive him.

GABOURY—GEORGE NARCEY GABOURY M.D., of 86 Forest Park Springfield Massachusetts with an office at 175 State Street, died at his home, June 4 1935.

He was born in 1884 and graduated from the Harvard Medical School in 1910. He was especially interested in the diseases of children and in addition to his practice devoted much time to the study of mathematics and physics.

ELLAM—HERBERT W. ELLAM M.D. Vice President of the Worcester North District Medical Society died suddenly at his new home at 85 Nowell Road Melrose Highlands June 4 1935. He had moved to Melrose just two weeks previously having retired from practice in Gardner Mass.

He was born in Clinton September 3 1879 the son of John W. and Annie (O'Brien) Ellam. In 1886 his family moved to Southbridge where he attended the public schools being valedictorian of his high school graduating class. He graduated from the Harvard Medical School in 1904 after a thorough hospital training at the Boston Floating Hospital and the Worcester City Hospital. He came to

Gardner in 1906 He later took Postgraduate courses at the Mayo Clinic and the Harvard Medical School He was a senior surgeon on the staff of The Henry Heywood Hospital until his retirement last December, when he was appointed to the Consulting Staff

Dr Ellam served in the Army Medical Corps for sixteen months and was a Major in the Reserve Corps at the time of his death He was appointed Associate Medical Examiner in 1920 and Examiner in 1930, of the 2d Worcester District He joined the Massachusetts Medical Society in 1906, was also a Fellow of the American Medical Association and the American College of Surgeons Fraternally, he was associated with Hope Lodge A. F. & A. M., Gardner Chapter R. A. M., Ivanhoe Commandery K. T., Aleppo Temple, the Harvard Club of Boston, the Gardner Boat Club and the American Legion He is survived by his sister, Mrs Minnie Redemann, of Melrose

FRANCIS M. McMURRAY, M.D., *Secretary*

NOTICES

BOSTON CITY HOSPITAL

The Ophthalmic Service of the Boston City Hospital invites physicians to attend the Henry Willard Williams Memorial Lecture Monday, June 24, 1935, at 8 15 P. M., in the Cheever Amphitheatre, by Walter Brackett Lancaster, M.D., President, American Ophthalmological Society (Formerly Visiting Ophthalmic Surgeon at Boston City Hospital)

Subject Ophthalmology Then and Now

JAMES J. REGAN, M.D.,

Ophthalmic Surgeon-in Chief

ANNOUNCEMENT

JOSEPH TARTAKOFF, M.D., announces the opening of an office at 79 Warren Street, Roxbury

REMOVAL

CHARLES SPIVA, M.D., announces the removal of his office from 1786 Acushnet Avenue, New Bedford, to 189 Bates Street, New Bedford

LAWRENCE CANCER CLINIC

Established 1928

Lawrence, Mass.,

June 4, 1935

To the Physicians of the North Half of Essex County

Dear Doctor

The regular Lawrence Cancer Clinic, to be held at Lawrence General Hospital, 1 Garden Street, Lawrence, upon Tuesday, June 18, at 10 00 A. M., will be a Demonstration Clinic with Channing C. Simmons, M.D., of Boston, Surgeon-in-Chief to the Collis P. Huntington Memorial Hospital, and member of the Cancer Commission of Harvard University, Boston, present as consultant. You are invited to accompany any of your patients whom you desire shall have

this service, or to send them with a note, and a report will be returned to you This service is gratis Your attendance at the Clinic is always welcome

This Clinic is endorsed by the Committee on Postgraduate Instruction of the Massachusetts Medical Society

Committee

ROY V. BAKETEL, M.D.,

CHAS. J. BURGESS, M.D.,

FRED'K. D. McALLISTER, M.D.,

JOHN J. McARDLE, M.D.,

HARRY H. NEVERS, M.D.,

THOS. V. UNLAC, M.D.,

J. FORREST BURNHAM, M.D., *Chairman*

REPORTS AND NOTICE OF MEETINGS

PLYMOUTH DISTRICT MEDICAL SOCIETY

A stated meeting of the Plymouth District Medical Society was held at the Pat Pan Eto Ranch, Stoughton, Thursday, May 16, 1935, at 11 A. M.

Dr. Michael A. Tighe of Lowell and Dr. Charles E. Mongan of Somerville addressed the Society on the subject "Federal Compulsory Sickness Insurance"

Dr. Tighe gave a carefully prepared talk on the proposed national legislation regarding compulsory sickness insurance, its probable effect upon medical practice in Massachusetts and what the Massachusetts Medical Society and its constituent county societies could do to prevent passage of these measures or to modify them before enactment.

Dr. Charles E. Mongan then gave a very interesting review of the origin of health insurance in European countries, stating that our proposed Federal Legislation in these matters was a copy of European laws

ANNUAL MEETING

The annual meeting of the Plymouth District Medical Society was held at the Lakeville State Sanatorium, Thursday, April 18, 1935, at 11 A. M. At the business meeting the following officers for the ensuing year were elected

President, William T. Hanson, M.D., Bridgewater, Mass., Vice President, Charles Hammond, M.D., Hanover, Mass., Secretary, George A. Moore, M.D., Brockton, Mass., Treasurer, Alfred C. Smith, M.D., Brockton, Mass., Councilors, Thos. H. McCarthy, M.D., Nominating, Charles G. Miles, M.D., Alternate, William E. Curtin, M.D., Plymouth, Peirce H. Leavitt, M.D., Brockton, John J. McNamara, M.D., Brockton, Leon A. Alley, M.D., Lakeville, Alfred C. Smith, M.D., Brockton, Censors, John J. McNamara, M.D., Brockton, Leonard A. Baker, M.D., Middleboro, Richard B. Rand, M.D., North Abington, Arthur W. Carr, M.D., Bridgewater, David B. Tuholski, M.D., Brockton, Orator 1936, John J. Decker, M.D., Lakeville, Librarian, John H. Weller, M.D., Bridgewater, Commissioner of Trials, Fred F. Weiner, M.D., Brockton, Nominating Committee, Leonard A. Baker,

M.D., William E. Curtin M.D. Richard B. Rand, M.D.

The Annual Oration was delivered by Dr. E. B. Gilmore of Brockton, who took for his subject "Diagnosis of the Acute Abdomen." The speaker emphasized the value of early diagnosis, a searching history and thorough physical examination in patients with acute abdominal lesions. He discussed the anatomy of the abdominal walls and stressed the value of knowledge of the innervation of these muscles in localized pain. The physiology of various organs was considered in some detail and the symptoms of the more common pathological processes. This was followed by a careful review of the differential diagnosis of many acute abdominal diseases.

Following the literary program Mr. Alexander McLeod of Westwood, Mass., gave an interesting talk on "A Trip Through Africa, New Zealand and Tahiti," illustrated with lantern slides and moving pictures.

The members were guests of Dr. L. A. Alley, Superintendent of the Lakeville Sanatorium, for dinner.

GEORGE A. MOORE, M.D. Secretary

BRISTOL NORTH DISTRICT MEDICAL SOCIETY

The Bristol North District Medical Society recently held a Special Meeting at the Sturdy Hospital in Attleboro for the discussion of Medical Economics. Drs. Charles E. Moulton, Walter A. Lane and Michael A. Tighe of the Committee on Public Relations were the speakers.

C. B. KINGSBURY Secretary

THE MALDEN MEDICAL SOCIETY

The Annual meeting will be held on June 18, 1935 at 6:30 P.M. Unicorn Club, Stoneham. Speaker: Charles Wilhinsky, M.D., of Beth Israel Hospital.

Mr. Grant Gay will show Travel Films.

A. H. WARREN, M.D., Secretary

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY JUNE 17, 1935

Tuesday, June 18—

1. M. South End Medical Club. Office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston.

- † 10-4 P.M. Ward Visit, Massachusetts Eye and Ear Infirmary.

Thursday, June 20—

1. M. Clinico-Pathological Conference. Massachusetts General Hospital.
11. M. Clinico-Pathological Conference. Children's Hospital.

Saturday, June 22—

10. Staff rounds at the Peter Bent Brigham Hospital. Open to practicing physicians.

Open to the medical profession
Open to Fellows of the Massachusetts Medical Society

June 17-19—The Medical Library Association will meet in Rochester, New York. For information address Miss Frances A. Whitman, Librarian, Harvard University Schools of Medicine and Public Health, Boston, Mass.

June 17 to 21—Convention of the Catholic Hospital Association will be held at Creighton University, Omaha, Nebraska. For information address the Most Reverend Joseph Francis Rummel, D.D., Bishop of Omaha.

June 18—South End Medical Club will meet at the office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston, at 12 noon.

June 18—Lawrence Cancer Clinic. See page 1150.

June 18—The Malden Medical Society. See notice elsewhere on this page.

June 24—Boston City Hospital, Henry Willard Williams Memorial Lecture. See page 1150.

June 24-25—American Urological Association and Western Branch Society American Urological Association will meet at the Palace Hotel, San Francisco, California. For details write Dr. Charles P. Mathe, 460 Sutter Street, San Francisco, California.

June 27-29—British National Association for the Prevention of Tuberculosis will be held at Southport, England. Persons desiring further information should write to Miss F. Stuckland, Secretary of the Association at Tavistock House North, Tavistock Square, London W. C. 1, England.

July 1-23—University of Freiburg, I. Br. will hold a vacation course of the medical faculty. For information address Akademische Auslandsstelle der Universität Freiburg, I. Br., Schwimmbadstrasse 8, Germany.

July 22-27—Seventh International Congress on Industrial Accidents and Diseases, Brussels, Belgium. The American Committee of the Congress is under the chairmanship of Dr. Fred H. Albee, New York, for the Section on Accidents and that of Dr. Emory R. Hayhurst, Columbus, Ohio for Industrial Diseases. The American delegation to the Congress will sail from New York on July 8 and visit London, Amsterdam, The Hague and Paris and optionally Budapest. Physicians interested in the Congress or in the medical tour in conjunction with it may address the Secretary, Dr. Richard Kovacs, 1100 Park Avenue, New York City.

October 7-10—American Public Health Association will meet in Milwaukee, Wisconsin. For information address the American Public Health Association, 50 West 50th Street, New York City.

October 21—November 2—1935. Graduate Fortnight of the New York Academy of Medicine. See page 893 issue of May 8.

October 23—November 1—The Twenty-Fifth Clinical Congress of the American College of Surgeons. See page 1053 issue of May 30.

BOOK REVIEWS

Clinical Pathology of the Jaws. With a histologic and roentgen study of practical cases. Kurt H. Thoma. 643 pp. Baltimore and Springfield. Charles C. Thomas. \$9.00.

This book includes in addition to a discussion of the common developmental, traumatic, inflammatory and neoplastic lesions of the jaws and oral cavity a large amount of material on generalized or widespread skeletal diseases which only incidentally affect the bones of the skull and jaws. It also includes illustrative material and discussions of several imperfectly understood conditions of rare or infrequent occurrence. An effective method of presentation of each subject has been used. This consists of an introductory discussion or text followed by case reports which are very well illustrated with roentgenograms, photographs and photomicrographs. It has obviously been the author's intention to bridge a gap between the fields of interest and understanding of the physician and dentist as well as to present the special problems of the oral surgeon. In the reviewer's opinion this difficult task has been in part successfully accomplished. The dentist should find the book to be of value since it brings together in a single volume a large amount of illustrated material on local and general disease processes which would

otherwise be difficult for him to obtain. For quick reference the clinician, roentgenologist and pathologist dealing with problems involving the oral cavity, jaws and skull, should also find this book to be useful. The treatment of most subjects should suffice for the casual reader but, as one might expect in a book so inclusive in its scope as this, students of special subjects will find it necessary to consult more authoritative works dealing with their respective problems. The reviewer would prefer relatively greater emphasis on actual disease processes affecting teeth, jaws, and oral cavity, even at the expense of greater brevity in the discussions of rare or interesting generalized skeletal diseases which are being intensively studied at the present time.

How Safe Is Home? Howard Whipple Green. 48 pp. Cleveland Cleveland Health Council. 50 cents

This compilation of facts concerning home accidents in Cleveland for a five-year period offers a mine of material to those interested in accident hazards in the home. A large number of diagrams showing the local distribution of the accidents in Cleveland are of no general interest, but certain of the charts showing the type of accident and emphasizing the relation of the frequency and severity of accidents to the economic condition of the home are of very real importance. Studies of this type covering an entire community well supplement the experience of insurance companies and should lead to the development of adequate data for basing a campaign of prevention.

Sculpture in the Living Jacques W Maliniak. 203 pp. New York Romaine, Pierson Publishers, Inc. \$3 00

This book was intended, according to the author's statement, to present the entire subject of plastic surgery in a simple, readable way for the general practitioner and the specialist who lack time for exhaustive study of the subject.

The reviewer's opinion is, however, that the various subjects are covered so superficially that it could hardly be considered useful to the medical man, except for those who desire a smattering of general information. On the other hand, the book seems rather to be written in such a way as to attract the interest of the general public. Its usefulness as a lay treatise is, to my mind, doubtful.

The Patient and the Weather William F Petersen and Margaret E. Milliken. Volume III. Mental and Nervous Diseases. 375 pp. Michigan Edwards Brothers, Inc. \$5 00

This book is one of a series of volumes on "The Patient and the Weather," this being the third publication, entitled, "Mental and Nervous Diseases." The author, professor of pathology and bacteriology at the College of Medicine, University of Illinois, Chicago, is indebted for his clinical material to Dr H. Douglas Singer, Director of the Psychiatric In-

stitute of Chicago. The first part of the book deals with general considerations such as genetic factors, the rôle of atmospheric alterations in mental disease, the seasonal concept of mental conditions, suicides and their relation to the regions where they take place, and similar problems. A second part, and by far the larger portion of the book, is devoted to the clinical aspect of this work. There are many case histories both of mental disease in its various types and multiple sclerosis, tabes, poliomyelitis and meningitis. It is the latter part of the book which will be of most interest to physicians. Apparently the author and his coworkers have made very extensive examinations of these patients and numerous details are given of their mental reactions, physical characteristics, and the laboratory data obtained from the blood, spinal fluid, etc. There are numerous charts and figures, the charts sometimes serving only to confuse the issue.

So far as can be ascertained from a somewhat prolonged reading of this book, the author attempts to show that some nervous and mental diseases are markedly affected by conditions of the weather which "interfere with the normal oxidation of the extremely active metabolism of the central nervous system." The reviewer doubts if one should infer from this that there is an "oxidation of metabolism", but this clause is about as clear as most of the statements in the book. Ends of sentences are omitted, verbs are left out and references wrongly given, with bewildering frequency.

A Textbook of Pathology for Nurses Coleman B. Rabin. 243 pp with 61 illustrations. Philadelphia and London W B Saunders Company \$1 75

There are relatively few textbooks of pathology for the use of nurses. The problem of how much to include in a volume of small compass is a difficult one but Dr Rabin has made his selection wisely. Rather than emphasis on specific disease processes there is a discussion of the various types of pathologic changes affecting the different organs and tissues. The illustrations are well chosen for their purpose. A set of questions at the end of each chapter aids the student in summarizing the knowledge she has gained. The final four chapters cover in a general way laboratory procedures.

Treatment by Diet Clifford J Barborka. 615 pp. Philadelphia J B Lippincott Company \$5 00

This eminently practical book aims to present concisely and systematically methods of prescribing diets and applying treatment by diet to health and disease. Discussion of theories is brief. Dietary prescriptions are given in great detail, first for diseases such as diabetes, deficiency diseases, etc., where the diet is of paramount importance and secondly, for conditions in which diet is of varying importance, as in diseases of the circulation, febrile diseases, and intestinal disorders. Food recipes are included and also an excellent bibliography.

The New England Journal of Medicine

VOLUME 212

JUNE 20, 1935

NUMBER 25

SECONDARY OPERATIONS OF THE COMMON BILE DUCT

BY RICHARD H. MILLER, M.D.* AND MARSHALL K. BARTLETT, M.D.*

THE necessity of performing a secondary operation upon the bile passages because of persistent or recurrent symptoms following an operation for biliary tract disease is a prospect that every practicing surgeon must face.

Such secondary operations are often prolonged, difficult, and involve a definitely higher mortality than primary biliary tract surgery.

This study represents an analysis of the cases of secondary common duct operations at the Massachusetts General Hospital during the ten years from January 1, 1924 to January 1, 1934. We have limited ourselves to those cases on whom both the primary and secondary operations were performed at this hospital. On these patients, we have complete data covering each hospital admission, and we felt that a careful study would be valuable in that it would reveal in each case whether the necessity for the secondary operation could be attributed to an error of judgment, or one of technique, or whether it was unavoidable.

For this reason, we felt that a study of this relatively small group, although it represents only a small proportion of all the secondary biliary tract operations performed during this period, would be more productive of information than an analysis of the group as a whole.

In the ten year period under consideration fifteen secondary operations were performed on the biliary passages of thirteen patients who also had their primary operations done at this hospital, two of the cases having a third operation. It must be recognized of course that some patients undoubtedly went elsewhere for secondary operations after unsuccessful primary surgery at the Massachusetts General Hospital. It is none the less surprising that only thirteen patients have returned for further common duct surgery over a period of ten years, in a large hospital.

UNAVOIDABLE OPERATIONS

Certain secondary operations upon the common bile duct are unavoidable because the patient's condition at the time of primary operation may not be sufficiently good to allow the

surgeon to do such a complete exploration of the bile passages as is indicated by the history, physical examination and laboratory data. In other words it is technically impossible to do as extensive an operation as should be done without unduly risking the life of the patient. At our present stage of technical development these cases are unavoidable. One operation, in our group of fifteen, falls into this class. The first operation was cholecystectomy with drainage for an acute cholecystitis with stones. The gall bladder had perforated, and further exploration was clearly not justified at that time. The attacks of typical biliary colic persisted, without jaundice. A secondary operation was performed six months later, and one stone was removed from a much dilated common duct. In studying the data on this case, we feel that it was impossible to avoid this secondary operation.

Excluding these unavoidable cases, most other secondary biliary tract operations represent either errors of judgment or errors of technique. There are in addition, occasional cases in which no stones are found in the common or hepatic ducts at the secondary operation. We have called these cases of "pseudo-colic" and will discuss them separately.

ERRORS OF JUDGMENT

A great deal of effort has been devoted to the study of the indications for exploration of the common and hepatic ducts and much has been written upon the subject. Recently Lahey¹, Clute and Swinton² and, Allen and Wallace³ have published articles dealing with this problem. There is now fairly close agreement among authorities on this subject, but we feel that the matter is of such importance that the indications will bear repetition.

It is commonly agreed that the common and hepatic ducts should be explored under the following conditions:

1. All secondary operations for persistent or recurrent symptoms following cholecystectomy or choledochostomy
2. Presence or history of jaundice
3. Palpable stones in the ducts
4. Thickening of the head of the pancreas, which might obscure the presence of a stone.
5. Dilatation or thickening of the common duct.

*Miller, Richard H.—Visiting Surgeon, Massachusetts General Hospital. Bartlett, Marshall K.—Assistant in Surgery, Massachusetts General Hospital. For records and addresses of authors see "This Week a Issue," page 1133.

- 6 Repeated frequent attacks of biliary colic
- 7 Contracted and thickened gall bladder

The last two conditions warrant exploration of the ducts because they are evidence of long-standing chronic disease and infection, and it is in these cases that stones in the common and hepatic ducts are most likely to occur

Two of the secondary operations in this series were necessitated by what seem to us to be errors of judgment at the first operations

One patient had had one attack of acute cholecystitis lasting ten days some months previously, and one attack of typical biliary colic the day before admission. He was jaundiced at the time of operation. The gall bladder was small and contained eight small stones. Cholecystectomy with drainage was done. The appearance of the common duct was not described in the operative note. Drainage of bile persisted through the wound, and two months later an attempt was made to explore the common duct. There was a considerable subacute inflammatory reaction, and although stones were felt in the common duct, attempts to remove them were unsuccessful. A third operation was necessary which is described later in this paper.

We feel that there was sufficient cause for exploration of the common duct at the first operation and failure to do so constitutes an error of judgment.

The other patient had had repeated attacks of biliary colic over a period of four years, becoming more frequent and more severe. There had been no jaundice. At operation the gall bladder was full of stones, and there were stones in the cystic duct. The common duct was not explored and is not described in the operative note. She had no symptoms for twelve months, but then began to have frequent attacks of typical biliary colic. A secondary operation was done thirteen months after the first operation. The common duct was moderately dilated, and it was impossible to pass an instrument into the duodenum. Consequently, the duodenum was opened and retrograde explorations of the common duct performed. A small stone was found impacted in the ampulla and was removed. It is reasonable to say that, in view of the long history of repeated attacks of colic, the common duct should have been explored at the first operation, and that the stone was present at that time. We therefore classify this as an error of judgment.

ERRORS OF TECHNIQUE

In ten instances in this group of fifteen secondary operations, further surgery was necessary because of errors of technique at the previous operation. By this we mean that the operative procedure was correctly chosen, but inadequately performed, in that stones were left

behind and were found only by a subsequent operation. This may happen at the hands of the best of surgeons, but nevertheless it constitutes an error of technique. It is probable that stones in the bile ducts found at later operations were, in all probability, present at the former operation. The possibility that stones may form in the bile ducts themselves cannot be definitely ruled out, but we believe that cases in which this happens are at least exceedingly rare and that for practical purposes, they may be disregarded.

It is interesting to study the symptoms of these ten patients in the interval between operations, with the above possibility in mind. The average interval between the operation and recurrence of symptoms was three months, and the longest asymptomatic period was six and one-half months. In seven of the ten instances the interval between operations was seven months or less. In the other three cases the secondary operations followed the primary ones at intervals of seventeen months, three years and five years. These three patients had been symptom-free only three, one, and three and one-half months respectively after the first operation.

It is well known that stones may be present in the bile passages without giving symptoms, even for long periods of time, and it would seem that the above figures would favor the presence of stones overlooked at the first operation rather than the formation of new stones between the operations.

Six of these ten cases were patients in whom the common duct was explored at the first operation, but stones were found in only two of them. After a few months symptoms recurred and after an interval, varying from four months to five years, stones were removed from the common duct in each case. There is no reason to describe each of these cases in detail.

One patient had one stone removed from a dilated common duct and cholecystectomy performed at the first operation. Attacks of typical biliary colic occurred at monthly intervals for three years. At that time three stones were removed from the common duct. She drained bile profusely through the drainage tube in the common duct after the operation and failed steadily. She died twelve days after the operation. This case is interesting for three reasons. First, because at autopsy stones were found in the common and hepatic ducts. Secondly, because it constitutes the only mortality in this group of fifteen secondary biliary tract operations, and thirdly, because no attempt was made to refeed the bile drained for twelve days after the operation. On the twelfth day a jejunostomy for the purpose of replacing bile in the gastrointestinal tract was performed, but the patient died three hours later. Needless to say this

occurred a number of years ago, before the danger of the continued loss of large amounts of bile was appreciated as it is now. Under the present régime of refeeding bile by mouth or stomach tube in these cases, this death would, in all probability, not have occurred.

As previously stated the fifteen operations in this series were performed on thirteen patients, so two of the cases had secondary and tertiary operations.

On one of these two patients cholecystectomy and choledochostomy constituted the primary operation. One large stone was removed from the common duct. It was broken in the process of removal and it was felt that some fragments were left behind. Symptoms recurred in two months, and six months after the first operation the common duct was explored again and one "almond-sized" stone removed. Again there was a persistence of symptoms and less than two months after the second operation another stone was removed from the common duct. It seems that both the second and third operations were necessitated by definite errors of technique at the preceding operative procedure.

The other case has already been mentioned in discussing errors of judgment. The second operation was necessary because of failure to explore the common duct at the first operation. At this secondary operation stones were felt in the common duct but attempts to remove them were unsuccessful. A third operation was performed three months later. We feel that the failure to remove stones that could be felt at the second operation must be regarded as an error in technique.

That two-thirds of these secondary operations fall into this group of technical errors seems to us particularly significant. It would seem fair to conclude even from this small series of cases that in the future prevention of secondary biliary tract surgery our efforts must be directed primarily at improving our methods of exploration of the bile ducts. Either some method must be devised to assure the removal of all the stones from the biliary passages at the first operation or else some provision must be made to provide for the passage into the duodenum of any stones that are overlooked.

At present there is available no sure method of determining whether all the stones have been removed from the common and hepatic ducts during their operative exploration. That stones are frequently overlooked has long been a well established fact. Mayo⁹ and Young¹² brought out this fact, using autopsy findings, and the results in our clinical study are in agreement.

That it is not enough to establish the patency of the common duct and the absence of stones by passing a probe or catheter into the duodenum is shown in the ten operations discussed

under this heading. In six cases the ampulla was patent and allowed the passage of a probe or catheter. In one case no instrument could be passed into the duodenum and in the other four no mention is made of the matter. Yet at later operations stones were found in all these cases.

Since it is impossible to be sure of removing all the stones from the hepatic and common ducts we are left with the alternative of providing some means for their subsequent passage into the duodenum.

The question of instrumental dilation of the papilla of Vater and the sphincter of Oddi has received the attention of various surgeons from time to time. Some years ago W. J. Mayo⁹ advocated gentle dilation of the papilla to facilitate the passage of overlooked stones.

In 1929 Cheever² reported 50 cases in which he had dilated the papilla, out of a total of 300 operations on the biliary tract. He used woven silk olive tipped ureteral catheters, sizes 10/20 F, for the purpose.

Walton¹¹, also writing in 1929, advised dilation of the papilla, which he had been using as a routine since 1919. He used stone forceps for the purpose and felt that the procedure was of value in order to allow the passage of overlooked stones and give internal drainage of infected ducts. He also advocated the use of the transduodenal approach if difficulty should be encountered in penetrating the papilla from above.

More recently Allen and Wallace⁴ have advised routine dilation of the papilla and report 138 cases. They use special dilators designed by Bakes of Brunn in Czechoslovakia. He has used them in 250 cases with twenty-two deaths. These authors describe in detail the technique for exploring the bile ducts and dilating the papilla. They emphasize particularly the importance of having the operator stand on the left side of the patient. In this position the surgeon is able to palpate the point of entrance of the common duct into the duodenum with his left hand, while manipulating the dilators through the sphincter of Oddi with his right. The danger of undue trauma is reduced in this manner.

Allen and Wallace advocate dilation of the papilla in all cases in which the common duct is opened. They do not hesitate to open the duodenum and perform a retrograde dilation if difficulty is encountered working through the opening in the common duct. On both of these points we are in agreement.

The chief objection to dilation of the papilla has been the possibility of a reflux of duodenal contents or pancreatic juice through the drainage tube in the common duct, with loss of body fluids and tissue digestion.

Cases in which this has occurred have been

reported from time to time Codman⁴ reported such a case in 1908 Davis⁵ in 1929 reported two cases and Walters and Marshall¹⁰ in 1930 reported four additional cases

In all these cases, dilation of the papilla of Vater was present, but it is likewise present in many cases in which duodenal reflux does not occur It seems necessary that some other factor shall be present Various suggestions have been made, as to just what this other influence is, but its nature has not been definitely established

Codman⁴ suggested pressure of the root of the mesentery, with duodenal obstruction as the cause Walters and Marshall¹⁰ mention abdominal distention with partial or complete ileus as a possible factor They also suggest that a high entrance of the pancreatic duct into the ampulla with a stone or spasm below it might cause a reflux of pancreatic juice

In the 138 cases of dilation of the papilla reported by Allen and Wallace¹, duodenal reflux occurred only once In this patient a false passage through the duodenal wall had been made at operation, and this was undoubtedly a contributing factor

Although the possibility of duodenal reflux must be kept in mind, we do not feel that it should be considered a contraindication to dilation of the papilla of Vater

Allen and Wallace discuss the possibility of causing a flare-up of acute pancreatitis and the chance of making a false passage through the duodenal wall, as other complications of dilation of the papilla. The former did not occur with sufficient frequency, in their series, to be significant and they feel that the latter may be avoided by reasonable technical skill and care

All in all, we feel that the advantages of facilitating the passage of overlooked stones and of providing interval drainage of the biliary passages far outweigh the possible complications

"PSEUDO-COLIC"

There still remain two cases in this group to be discussed One patient had cholecystectomy and choledochostomy with removal of a few mud-like stones from the common duct He was readmitted to the hospital three times in the next two months with repeated attacks of biliary colic with jaundice On the fourth admission the common duct was reexplored but no stones could be found

The other patient was readmitted seven years after cholecystectomy with a history of yearly attacks of severe colic, exactly like the attacks before the primary operation The common duct was explored but no stones were found

We do not know exactly how to interpret these cases Knowing the frequency with which stones are overlooked in the bile ducts, it is impossible to state that stones were not present,

although none were found That the symptoms may have been due to an infectious process in the bile ducts is another possibility It is also probable that pain and distress in the region of the gall bladder may be due to spasm of the sphincter of Oddi as shown by Ivy, Voegtlin, and Greengard⁶

In cases such as these, where it is impossible to determine the exact cause of the symptoms, we believe that dilation of the papilla should be performed In this way the necessity for a secondary operation may be avoided

SUMMARY

- 1 Fifteen cases are reported in which a biliary tract operation, performed at the Massachusetts General Hospital, was followed by recurrent symptoms suggesting the presence of stones in the common duct In all but two of these, subsequent operations proved the presence of such stones
- 2 Of the fifteen secondary common duct operations reported in this study, one was unavoidable
- 3 Two of these operations were necessary because of failure to explore the common bile duct at the first operation, in the presence of adequate indications for doing so These constitute errors of judgment The indications for exploring the common duct are reviewed
4. Ten of the operations can be attributed to errors of technique at the first operation, in that the common duct was explored, but stones were left behind necessitating a secondary operation
- 5 Possible means for the prevention of this type of error are discussed
- 6 In two cases no stones were found in the common duct at the secondary operation These are called "pseudo-colic" and their explanation is discussed
- 7 The one fatal case in this group is described

CONCLUSIONS

- 1 In every operation on the gall bladder the surgeon must weigh in his mind the pros and cons of exploration of the common duct, and never dismiss the indications without most careful consideration Every surgeon who operates on the gallbladder should be competent, both in judgment and skill, to carry out this procedure
- 2 Failure to remove all of the stones in the course of an operation upon the bile passages may occasionally be unavoidable, but usually is due to an error, either of judgment or technique The actual formation of stones in the bile ducts themselves is extremely rare
- 3 The indications for exploration of the common bile duct are now quite well understood They are reviewed in this paper

4. Dilatation of the papilla of Vater constitutes the most logical and satisfactory means of allowing stones that may be overlooked in the bile ducts to pass into the duodenum and should be performed on all cases in which the common duct is explored
5. If difficulty is encountered in penetrating the papilla of Vater from above a transduodenal dilatation should be performed

REFERENCES

1. Allen, A. W. and Wallace R. H.: Technique of operation on the common bile duct with special reference to injury in total dilatation of the papilla of Vater. To be published
2. Cheever, David: Instrumental dilatation of the papilla of Vater and the dislodgment of calculi by retrograde irrigation: a contribution to the surgery of the bile passages. Arch Surg 18: 1049 19 3
3. Clute H. M. and Swinton, N. W.: Exploration of the common duct in gall-stone surgery. Surg Gynec. & Obst. 59: 908 (Dec.) 1934
4. Codman, E. A.: Chronic obstruction of the duodenum by the root of the mesentery. Boston M. & S. J 15: 883 1895
5. Davis, L.: Reflux of duodenal contents through the common bile duct. New Eng J Med. 94: 312 1929
6. Ivy A. C., Voeltig, W. L. and Greengard, H.: The physiology of the common bile duct. J. A. M. A. 10: 1219 (Apr. 8) 1923
7. Lahey Frank H.: Common and hepatic duct stones. New Eng J Med. 107: 688 (Oct. 9) 1932
8. Mayo, W. J.: Quoted by Allen and Wallace
9. Mayo, W. J.: Surgery of the hepatic and common bile ducts. Lancet 1: 193 (June 3) 1923
10. Walters, W., and Marshall, J. M.: The reflux of pancreatic and duodenal secretions through a drainage tube in the common bile duct. Surg. Gynec. & Obst. 50: 627 (March) 1930
11. Walton, A. J.: Surgical treatment of recurrent cholelithiasis. Brit. J. Surg. 16: 648 (Apr.) 1929
12. Younck, E. L.: Possibilities of failure in the removal of a stone in the biliary duct. New Eng J Med. 97: 1115 (May 29) 1929

TRANSITORY VISUAL DISTURBANCES IN DIABETES MELLITUS*

With Report of Cases

BY ABRAHAM RUDY, M.D.† AND BENJAMIN SACHS, M.D.†

ONE of the many complications in diabetes mellitus is a transitory disturbance in vision. It occurs in untreated cases of diabetes or in cases just started on treatment with diet or diet with insulin. It may vary from a slight change in the eyesight to almost complete blindness. Fortunately, it is transitory and does not leave any residual effects although some believe that this disturbance may be the cause of early cataract development in diabetes.

In spite of the fact that this phenomenon is under frequent discussion in the ophthalmological literature, there is very little mention of it in the general medical journals of this or any other country and the average physician is completely unaware of it. The opinions as to its frequency are still quite divergent. The reason for it lies in the different approach to this problem. Some investigators studied all consecutive cases of diabetes, others studied only the patients who complained of a disturbance in vision. It is significant that almost all of the single cases reported in the literature occurred during the acute stage of the diabetes and its early treatment or during an acute exacerbation of the disease. Appreciating this fact, Granström¹, in Stockholm in the study of the eyes of a large group of diabetics divided the patients into two groups the "fresh" and the "old" namely, acute and chronic diabetics. He, then was able to demonstrate that a temporary defect in vision is common in "fresh" and rare in "old" diabetics.

Diabetic patients who experience visual disturbances present three characteristic histories

In one case a person with an apparently normal vision suddenly or within a few days develops poor distance or near vision simultaneously with a number of symptoms and findings characteristic of diabetes mellitus, or at times without any symptoms of diabetes. In the second case a person who has known that he had diabetes and had good vision notices a change in his distance, near vision or both soon after the treatment for his diabetes is instituted. The third more common case usually complains of blurring and difficulty in near vision. This disturbance may appear either before or soon after treatment for diabetes is started, and may vary in degree from day to day. It eventually clears up with the continued treatment of the diabetes. Examination of the eyes will show a myopic change in the first case hyperopic in the second case. In the third case no change in refraction is found. The disturbance may be due to a weakness in accommodation or to some other factor.

Granström's studies have shown that although refractive changes, especially hyperopia, are very common following treatment in acute diabetes subjective symptoms are present in only about fifty per cent. In some cases, especially in those below the age of thirty, a diminution in the accommodation was observed in the myopic as well as in the hyperopic state. We have noticed that in our cases as well as in those reported in the literature in detail, the subjective symptoms not only were at times absent in the presence of a change in refraction or accommodation, but that the degree of the subjective impairment of the vision did not correspond to the degree of increase or decrease in the refraction or accommodation. When the subjective symptoms do accompany the refractive change, they disappear long before the refractive

From the Medical and Eye Services of the Beth Israel Hospital.

†Rudy Abraham—Physician to the Diabetic Clinic, Beth Israel Hospital. Sach Benjamin—Ophthalmic Surgeon, Beth Israel Hospital. For record and address of authors see "This Week's Issue," page 1156.

tion is stabilized. We thus believe that the above-mentioned disturbance in vision in diabetes can be attributed to three factors which may occur simultaneously or separately although apparently brought about by the same cause. They are: 1. A change in refraction which may be myopic or hyperopic. 2. A diminution in accommodation. 3. Subjective impairment of vision, not due to any change in refraction or accommodation. Myopic changes always occur in the untreated diabetic while hyperopic changes occur only after treatment has begun. The myopic improves rapidly with the treatment of the diabetes. The hyperopic change appears quite suddenly as soon as the treatment of the diabetes begins, but usually subsides slowly. It takes at times a number of weeks before the refraction returns to normal. The diminution in the accommodation is found in the myopic as well as in the hyperopic state. The eyesight may, at times, become so defective that it will cause the patient and even the physician great alarm. The patient should be told that this entire phenomenon is of benign character and transitory. No glasses should, therefore, be prescribed until the refraction has become stabilized, unless the occupation requires it. Sudden changes in vision and especially in the refraction of an individual should warrant a thorough search for diabetes.

REPORT OF CASES

The following case is presented because a diagnosis of diabetes was suspected and made on the basis of rapid myopic changes in the refraction without history of symptoms of diabetes.

CASE 1 (private case) Miss P. R. T., aged fifty, December 9, 1933. This case was seen by one of us because of unsatisfactory correction with glasses. In a period of ten weeks she had been given three pairs of glasses by three different oculists. Examination of the glasses showed a progressive decrease of hyperopia. The refraction when seen by us showed that the patient was slightly myopic and that there was a difference of about two diopters from the refraction of ten weeks before. Ophthalmoscopic examination was negative and although no diabetic history could be obtained from the patient, it was strongly suspected that she did have diabetes. On examination by her family physician, considerable glycosuria was found.

The following two cases illustrate the transitory changes in the refraction and its relation to the subjective visual disturbances. Although the subjective symptoms accompany the refractive changes, they do not always occur at the same time or in equal degrees of severity. While in Case 2 the change in the refraction was quite marked and the subjective symptoms not very disturbing, we find the opposite in Case 3.

CASE 2 (B. I. H. Case 23156) E. K. Female, aged 51. Acute Diabetes. First seen in March, 1932, with a history of diabetic symptoms of eight weeks' duration. Never was treated for diabetes before.

Eyes Examined after diabetes developed

March 29/32 Five days after treatment began
Blurring of the eyes since started on treatment
O.D. +1.50 (under homatropine) Vision 20/20
O.S. +1.50 " " " 20/20
April 8/32
O.D. +4.25 (under homatropine) Vision 20/20
O.S. +4.25 " " " 20/20
May 5/32 Vision subjectively much improved
May 12/32
O.D. +1.75 +50 X90 Vision 20/20
O.S. +2.25 " " " 20/20
Add +2.00 = J 1 " 20/20
September 29/32
O.D. +50 Vision 20/20
O.S. +75 " " " 20/20
Add +2.00 reads J 1 " 20/20
March 24/34
O.D. +75 Vision 20/20
O.S. +75 " " " 20/20
Add +2.50 = J 1 " 20/20

The diabetes has been under control from the time treatment began. Her insulin dosage was decreased, in the first six months from 70 to 16 units daily, and remained so while the diet was increased from C 130 — P 60 — F 110 to C 160 — P 60 — F 100.

CASE 3 (B. I. H. Case 1134) A. F. Female, age forty-nine. Acute diabetes. First seen in the Diabetic Clinic in December, 1933. She gave a history of acute symptoms of diabetes of two months' duration which developed immediately following an intravenous injection of skiodan for urography. It was discovered later that her urine on the day of the intravenous urography showed sugar but she had no symptoms of diabetes. Never was treated for diabetes before. Admitted to the wards because of a concurrent cold.

Eyes Examined about four years before she developed the diabetes

February 15/30
O.D. +2.50 Vision 20/20—
O.S. +2.75 " 20/50+
January 11/34 Examined after she developed diabetes. Since she was started on treatment (December 26/33) her vision gradually grew bad so that she could not recognize people.
O.D. +4.50 Vision 20/30+
O.S. +4.50 " 20/50—
January 25/34 Vision subjectively markedly improved
February 8/34
O.D. +4.25 Vision 20/30+
O.S. +4.50 " 20/65
February 27/34 Vision subjectively very good
O.D. +4.00 +50 X90 Vision 20/30+
O.S. +4.00 " 20/65
April 17/34
O.D. +3.50 Vision 20/25-3
O.S. +3.75 " 20/65
Add +1.25
Add +2.25

Her diabetes has been under good control from the time treatment began. The diet was gradually increased to C 170 — P 80 — F 130, and her insulin dosage is now 10 — 0 — 10 units daily.

DISCUSSION

Many theories have been suggested as an explanation for the transitory visual disturb-

ances in diabetes. Although in the opinion of most of the writers the lens is the seat of the refractive change it was left to Elschnig² to bring definite proof of it. He reported a case of a woman who had developed diabetes with visual disturbances at a time when she had only one lens, the other having been removed for a cataract. A change in the refraction was found only in the eye with the remaining lens. It is thus clear that the refractive changes are due to changes in the lens. As to the disturbance of accommodation Granström believes that it is due to a change in the refractive index of the central part of the lens, while many other writers attribute it to a paresis of the ciliary muscle.

Since a number of our patients who are over forty have had visual disturbances without noticeable change in the refraction we cannot blame it on a paresis of accommodation but on a third factor which lies somewhere outside of the lens, and of the mechanism of accommodation. Assuming that the lens or some other parts of the eye undergo changes what causes these changes? Hagen³ believes that it is the diet, while Enroth⁴ and Post⁵ think that the acidosis is responsible. One of the most popular theories of recent time is that of Duke Elder⁶ who attributes the transitory changes in refraction to swelling of the lens in myopia and to shrinkage of the lens in hyperopia. The changes depend on and vary with the sugar concentration in the blood, and presumably in the aqueous humor. He points to the fact that with the high blood sugar the sodium chloride content of the blood drops and he therefore believes that the salt content is also lowered in the tissues and in the aqueous humor. The lens which has a sluggish metabolism resists this osmotic disturbance for a while but the water fairly suddenly enters the lens, swells it, and causes myopia. With the drop of the blood sugar the reverse occurs, namely, hyperopia develops because water escapes from the lens into the surrounding fluid, which has, at that time, a relatively low osmotic pressure.

Duke Elder⁶ admits that his theory does not explain why this phenomenon is only observed in some cases of diabetes but not in others. Marked changes in the blood sugar can be found in any stage of diabetes under treatment without any influence on the refraction or accommodation.

Granström brings forward an interesting hypothesis which seems to be more in line with our findings and which may at least explain the change in refraction. His theory is based, first of all, on the fact that during the acute stage of diabetes there is marked dehydration during which according to Meyer Bisch⁷ and Klen⁸, there is dry retention of salt in all the tissues of the body. He then supposes that the salt retention occurs also in the lens especially

in the nucleus, raises its refractive index, and thus causes a myopic change. With the disappearance of the glycosuria the retained salt causes a temporary retention of fluid in the tissues. A retention of fluid in the nucleus of the lens will result in a lowered refractive index causing hyperopia.

It is our belief that the impairment of vision has more relation to a disturbance in the salt and water balance than to the sugar. How much the derangement of the salt and water balance is dependent on the pathology in the pancreas as Meyer Bisch⁷ thinks, or how much it is the result of the faulty carbohydrate metabolism, is still a question to be solved.

It is of interest to note that temporary changes in vision have been observed by Schieck⁹ and Terrien¹⁰ in other conditions with a disturbed water and mineral balance as in severe diarrhea, on a reducing diet in a cardiac patient with edema by Jensen¹¹ in alkalosis by Thorson¹² and Everly¹³. Gallus¹⁴ reports two cases of transitory hyperopia without diabetes. One had liver disease and the other a severe degree of tuberculosis.

CONCLUSIONS

1 Transitory visual disturbances in diabetes mellitus occur mostly during the acute stage or an acute exacerbation of it.

2 They usually occur in the form of a myopic change before the treatment of the diabetes has started, and a hyperopic change following soon after treatment has begun.

3 The hyperopic change develops following diet as well as insulin treatment.

4 A diminution in accommodation occurs in the myopic as well as the hyperopic state.

5 Subjective symptoms of impaired vision are present in some cases and completely absent in others.

6 The severity of the subjective symptoms is not parallel with the degree of the change in the refraction. It may be marked when the refractive error is small, and insignificant when the refractive change is great. The same is true in relation to the accommodation.

7 The possibility of a third factor outside of the change in the refraction and accommodation, as the cause of the subjective disturbance in vision should be considered.

8 Since the visual disturbances are transitory, they should not be the cause of alarm to the patient or physician. Glasses should not be prescribed until the vision has become stationary, unless the work of the patient requires it.

9 The mechanism of this phenomenon is still unknown and further studies are indicated.

10 It is probably due to a disturbance in the water and salt balance brought about by the faulty carbohydrate metabolism but is not directly related to the blood sugar variations.

11 Similar visual disturbances are said to be found in conditions of non-diabetic origin.

but accompanied by a disturbance in the salt and water balance, as in alkalosis, diarrhea, etc

REFERENCES

1 Granström K O Refraktionsveränderungen bei Diabetes mellitus Acta Ophth 11 1 1933
- Elschsig A Refraktionsänderungen bei Diabetes mellitus Med Klin 19 17 1923
Diabetes und Augenerkrankungen Med. Klin. 25 49 1929
2 Hagen S Zur Ätiologie der transitorischen Hypermetropie bei Diabetes mellitus Arch f Ophth 105 243 19.1
4 Enroth Quoted by Granström
5 Post M H Change of refraction following an attack of diabetes Am J Ophth 34 329 1917
6 Duke Elder W S Changes in refraction in diabetes mellitus Brit J Ophth 9 167 1925

7 Meyer Blisch R Mineral- und Wasserstoffwechsel bei Diabetes mellitus Ergebn d inn Med und Kinderh 32 267 1927
8 Klein O Studien über den Wasserwechsel beim Diabetes mellitus sowie über die Einwirkung des Insulins auf denselben Ztschr f Exper Med 47 309 1925, und 43 665 1924
9 Schleck F Ueber temporäre Myopie Klin monatsbl f. Augenh 45 40 1907
10 Terrien F L Les petits signes oculaires du diabète presbytie hypermétropie myopie Paris méd 41 31 1921
11 Jensen V A Transitory non diabetic hypermetropia in a patient on reducing diet Acta Ophth 10 388 1932
12 Thorson J A Myopia in alkalosis from Sippy treatment Arch Ophth 10 20 1933
13 Eyerly Quoted by Thorson
14 Gallus E Hyperopia und Diabetes mellitus Ztschr f Augenh 15 319 1906

AMERICAN MEDICAL ASSOCIATION

Dr James Tate Mason, of Seattle Washington was chosen president elect of the American Medical Association on June 13 Dr Mason was born in 1882 and graduated from the University of Virginia, Department of Medicine, Charlottesville, in 1905 He is a surgeon

Dr Kenneth M Lynch, of Charleston, South Carolina, was elected vice-president Dr Olin West and Dr Herman L Kretschmer, both of Chicago, were reelected secretary and treasurer, respectively

Dr Nathan B Van Etten of New York City was elected speaker of the House of Delegates and Dr Harrison H Shoulders, of Nashville, Tennessee, was elected vice speaker

A COMPARISON OF CAUSES OF DEATH
IN NEW YORK CITY

The Department of Health of New York City has published an analysis of the comparative causes of death of 1901 and 1933 as follows

'The common infectious diseases listed constituted 37 per cent of all causes of death in 1901 By 1933 they made up only 17.3 per cent The diarrheal diseases of children caused 8½ per cent of all deaths in 1901, by 1933 this had fallen to less than 1 per cent

"Up to this point the showing is most gratifying In the case of some, formerly prevalent diseases, for example, smallpox, our victory has been well nigh complete There has been only one death of smallpox in New York City since 1912 In diphtheria the reduction from 2068 deaths in 1901, to 86 in 1933 also represents a remarkable achievement, especially when the doubling of the population is considered

'Equally gratifying is the splendid reduction in the death rate of diarrheal diseases in children under 5 years, though it is only fair to say that this reduction as well as the reduction in diphtheria and other contagious diseases of children is not quite so large as the figures would indicate It must be remembered that in 1901 the birth rate was approximately 35 per thousand (in contrast to 14 in 1933) and that therefore the child population was relatively large

thirty years ago However, even with allowance for this fact there has been a very marked reduction in the death rate of the diseases mentioned

"As we proceed down the list of important causes of death we come next to a group of conditions affecting principally older adults These embrace diseases of the cardiovascular renal system (including apoplexy), cancer, and diabetes In 1901 these were responsible for 22½ per cent of all deaths, in 1933 this percentage had risen to 51 per cent This, then, is just the reverse of the situation which we found in the case of the infectious diseases and diarrheal disease of children It calls for a realignment of our forces, it demands somewhat less emphasis on the infectious and diarrheal diseases and more emphasis on the diseases of later life

"To a large extent the growing importance of these diseases of later life is the result of the change in the age composition of the population, a change brought about very largely by the very great decline in the birth rate during the past thirty years In 1900 the '45 year and over' part of the city's population amounted to 15.9 per cent, in 1930 this group made 21.1 per cent. Better diagnosis has also played an important part in the increased death rate recorded for the various diseases shown in our table, so that, all factors considered, there is no ground for believing that in any particular age group these diseases now have a higher death rate than they had, say a generation ago In fact, evidence is at hand that we are making progress in all of the conditions under discussion"

MALNUTRITION PROGRAM FOR JEWISH
CHILDREN

The Ladies' Helping Hand Home of Boston for Jewish Children has announced the establishment of a malnutrition program for Jewish children between the ages of six and fourteen

The program includes the supervision of rest, diet, recreation and hygiene and is a free service for worthy patients, but does not include the supervision of definite disease

THE NEW HAMPSHIRE MEDICAL SOCIETY

PROCEEDINGS OF THE ONE HUNDRED AND
FORTY FOURTH ANNIVERSARY

House of Delegates, Manchester, N H, May 6, 7 and 8, 1935

THE House of Delegates convened at the Hotel Carpenter, Manchester, New Hampshire, on Monday, May 6, 1935 at seven thirty o'clock in the evening

The meeting was called to order by Henry O Sanders, Jr, Speaker of the House of Delegates

The following members responded to the roll call

Frederic P Lord President
Clifton S Abbott, Vice-President
Carleton R Metcalf Secretary Treasurer
Richard W Robinson of Laconia
John R. Perley of Laconia
William J Paul Dye of Wolfeboro
Osmon H Hubbard of Keene
Arthur W Hopkins of West Swansen
Elmer M Miller of Woodsville
Leslie K Sycamore of Hanover
Roland J Joyce of Nashua
Deering G Smith of Nashua
Clarence E Dunbar of Manchester
Henry H Amsden of Concord
Warren H Butterfield of Concord
Cleon W Colby of Exeter
Laurence R Hazard of Portsmouth
Harry O Chesley of Dover
Jeremiah J Morin of Rochester
Charles E Buchanan of Claremont.

PRESIDENT LORD I appoint Dr Dearborn in place of Dr Pease and Dr Keeler in place of Dr Thorpe.

SPEAKER SANDERS appointed the following committees

Officers' Reports—Deering G Smith Cleon W Colby Leslie K Sycamore

Memorials and Communications—Henry H Amsden John R Perley and W J Paul Dye.

Credentials—Roland J Joyce Jeremiah J Morin and Charles E Buchanan

DR. JOYCE The Committee on Credentials finds that there are twenty delegates present with credentials

SPEAKER SANDERS The next business of the meeting is the report of the President Dr Frederic P Lord

Report of President

I am glad to have this opportunity to speak to the House of Delegates. The larger part of what I might suggest or recommend will be suggested or recommended by your various committees and by your Secretary

Among the active committees are the Committee on Jurisprudence, on Constitution and

By Laws and Public Relations Public Policy and Legislation. The Committee on Medical Liability, continued for three years, has met often and has been active among the county societies. The labors of the Committee on Scientific Work speak for themselves during the next two days.

But I wish especially to call your attention to the Committees on Medical Relief, Child Health and Maternity and Infancy. I trust that there will be no question in your minds of the continuance of these three committees and that the county societies will continue their special committees. I should like to suggest that county committees be fully informed of the need for their existence and the means by which these needs can best be met.

The question of voluntary Group Hospitalization Insurance has been in more than one instance approved. I hope exact information of what it really is will be brought before every one and that our Society will see fit to approve the general plan. At present it is being considered with the possibility of its adoption by the Hospital Superintendents' Club.

I should like to suggest joint meetings with neighboring counties in our own State and in adjacent States on the part of our county societies.

Another subject which interests me greatly, is the question of some sort of opportunity for making accessible to our membership the newer information of a medical nature.

The Iowa Medical Society has instituted a "Speakers' Bureau" which has arranged special meetings in different parts of their State provided speakers, mostly or entirely from its own membership and has reached several hundred members in this way. This has been done almost at no expense on the part of the Society itself. This scheme seems to me to have elements which might be adapted to our State. I think it is a matter concerning which we have not yet made our final attempt.

In our State, made up largely of small towns, with one, two or three doctors to each town it is difficult for these doctors to get away from their practice for attendance upon any sort of meeting professional or otherwise or to take a vacation. The lone doctor in a town finds when the time comes for a hoped for exodus that he is tied down by his patients as the sole doctor on the spot. If some one were available to take his practice for a few days he would perhaps more readily depart. Is there any way possible whereby this Society could assist him? With all its practical difficulties could not some

one be provided by the State Society? Perhaps a young doctor, or an older one, not settled at the time in any community, who could be regarded as a sort of replacement man, a "locum tenens" as the English say, who could take over the practice of the doctor who wishes to be away from his work for a season, who would do the work for the necessary time (financial arrangements being worked out in advance) and who would then be ready to do the same thing elsewhere for another man. With some sort of supervision and sponsorship by our Society, the plan might be made to work out so that one or more of such "locum tenens" could be available for our members.

If this were possible it might be of very real service for those doctors in our State who are so located that it is difficult for them to have the advantages which are more easily had by others in larger places.

Everything that this Society can do which gives unity and greater common activity will help us all individually, will benefit the Society, and ought to be of value to the State as a whole.

SPEAKER SANDERS This report will automatically be referred to the Committee on Officers' Reports.

We will now hear the report of the Secretary Treasurer for the year, and I now call upon Dr Metcalf.

Report of Secretary-Treasurer

To the Members of the House of Delegates of the New Hampshire Medical Society. The following report for the year 1934 is respectfully submitted.

Total Membership December 31, 1934

PAID MEMBERSHIP

Belknap County.....	30
Carroll County.....	12
Cheshire County.....	28
Coos County.....	29
Grafton County.....	49
Hillsborough County.....	123
Merrimack County.....	56
Rockingham County.....	47
Strafford County.....	32
Sullivan County.....	19
Members not in County Society.....	7
	432

UNPAID MEMBERSHIP

Affiliate Members.....	27
Honorary Members.....	16
Members not in good standing.....	7
	50
	482

The total membership at the end of 1933 was 486

FINANCIAL STATEMENT

Receipts

Jan 1, 1934 Balance forward.....	\$209 20
Belknap County.....	192 00
Carroll County.....	72 00

Cheshire County.....	246 00
Coos County.....	204 00
Grafton County.....	264 00
Hillsborough County.....	762 00
Merrimack County.....	342 00
Rockingham County.....	300 00
Sullivan County.....	120 00
Strafford County.....	214 00
Members not in County Societies.....	40 00
Net receipts annual meeting.....	392 77

\$3,357 97

Expenditures

Bank Tax.....	\$1 28
New England Journal of Medicine.....	941 20
American Medical Association (Director's)	12 00
Evans Printing Company.....	64 10
Bridge & Byron (Printing).....	126 44
May, the Printer.....	3 50
Thomas W Luce (Medical Jurisprudence meeting).....	4 00
Stamps, telephone calls and telegrams.....	45 76
Paul Sullivan (Stamps).....	7 20
Bowers Stamp Company.....	1 00
Wheeler & Clark (Rubber Stamp).....	3 80
Lena Minot (Mimeographing).....	30 00
Clerical Work.....	77 00
Benevolence Fund.....	223 83
Robbins Company (Gold Medals).....	32 08
Kimball Studio (Dr Sullivan's picture).....	1 25
Frederick P Scribner (Committee Scientific Work and Social Evening).....	66 15
Women's Auxiliary.....	100 00
Frank Adair (Annual Session).....	28 00
J Franklin Babb (Annual Session).....	50 00
Mavo Clinic (Dr Alvarez).....	63 01
Fred E Clow (Committee Liability Ins).....	100 00
George C Wilkins (Committee Cancer).....	50 00
William P Murphy (Annual Meeting).....	5 00
S A Petroff (Expenses Annual Meeting).....	36 00
Madeline A May (Stenographer Annual Meeting).....	123 39
Brown & Saltmarsh (Clasp Envelopes).....	1 25
Eagle & Phoenix Hotel (Meetings of Aug 6, Nov 7 and Dec 13).....	169 80
Newspapers.....	13 25
N E Tel & Tel Co (Committee Child Health).....	10 30
Sickness Insurance Literature.....	4 50
Trustees.....	500 00

\$2,900 09

Jan 1, 1935 Balance in check book.....	463 88
--	--------

\$3,363 97

Dues Dr Tarbell Credited for 1933 but not deposited.....	6 00
--	------

\$3,357 97

2/13/34

We have lost by death during the past year one officer of this Society, Arthur A Pratte, Councilor for Cheshire County. I record his death with sincere regret.

On Tuesday afternoon President Lord will present a gold medal to Dr Edward H French of Potter Place who has been a member for a continuous period of fifty years. At the same hour, the six New Hampshire physicians who have been in practice for fifty years will be introduced.

President Lord has selected John F Gile of Hanover for Anniversary Chairman. The President also appoints under the by laws, two committee members and those were selected as follows Harry O Chesley of Dover on the New England Medical Council and Robert J Graves of Concord on the Committee on Medical Education and Hospitals.

Some of our Committees have been more active than usual during the past year. The Committee on Amendments to the Constitution and Bylaws, for example, has prepared for this session a considerable number of changes for your consideration with the thought that it may be desirable to issue a new and up-to-date book let containing these rules and regulations.

The Committee on Public Relations Public Policy and Legislation has been concerned as you will see by its report, not only with the usual grist of bills in the New Hampshire General Court but with the important and perhaps vital attempts to place the practice of medicine under government ownership. This Committee has had wholehearted assistance from two of our members Charles Duncan Secretary of the State Board of Health, and Robert O Blood who has been a member of the Legislature.

The welfare of the medical profession in New Hampshire depends not a little on having three or four doctors in the General Court. It would be well for the House of Delegates to pass a resolution urging physicians to run for the State Senate or for the State House of Representatives and further to see that this is carried out.

May I suggest that the name of this Committee be shortened. The more lengthy title, it seems to me, serves no useful purpose and is burdensome in writing or in discussion.

The three committees of which your Secretary is Chairman are not submitting separate reports this year. A perusal of the reports of these committees over the past few years shows a dreary repetition of unessential facts. The acumen or lack of acumen, of the Committee on Scientific Work is shown in the program for the annual session which all of you have received. Many of the details of the program were arranged by my two colleagues on the Committee, Frederic P Scribner and Richard W Robinson. The Committee on Publication has been responsible for the Transactions and for the material which has appeared in the *New England Journal of Medicine*. We have tried to make the material in the *Journal* more interesting by miscellaneous items concerning doctors, nurses and hospitals in New Hampshire.

To procure these we subscribed for ten New Hampshire newspapers one from each County. I am not sure that anyone has noticed our efforts. I am not sure that any appreciable group of our members read the *Journal*. What do you say to this?

The third Committee of which your Secretary is Chairman,—the Advisory Committee on Jurisprudence,—has held three meetings during 1934 to consider medical dilemmas which came within their field. Let me stress the point which is covered by one of our by laws that any physician who is threatened should notify me immediately and should send in a detailed report.

Two special committees which were appointed last year for the first time have completed the chain which has taken over practically all of the work formerly allotted to the Committee on Lay Health Organizations. The Committee on Lay Health Organizations has received a mortal blow and I recommend that it be disbanded.

One occasionally hears the statement that the New Hampshire Medical Society is run by a small coterie and that the average member is on the outside looking in. It is often true, of course that the average member who complains isn't willing to do some of the drudgery when he has a chance, but in order to break down this criticism more literature has been sent out this year than has been the custom in the past.

With similar intent reply postal cards were sent out on three occasions, with the following results:

Fourteen dark horses wish to read papers at the annual meeting.

Fifty members wish to serve as delegates from New Hampshire at medical meetings in other New England States.

Twelve doctors who are not now members of our Society wish to join.

I have in mind a fourth reply postal card asking members whether as occasion offers, they would like to do active committee work. Such a postal card would not commit us to accepting every enthusiast, on the other hand we might develop new blood in unexpected quarters.

If you look over this year's program you will find that some of the old reliables are serving on two or three committees, which is probably not a healthy symptom. What do you think of sending out such a postal card?

The Society is financially sound. We not only paid our running expenses during 1934 but also added \$500.00 to the invested funds. The Benevolence Fund now amounts to \$902.09. This particular fund has been augmented recently by a check for \$17.00 from the Women's Auxiliary of Grafton County. I congratulate this group. It has been difficult to arouse enthusiasm in the Auxiliary.

We are in a period of depression and this is probably the period when our Benevolence Fund ought to be working overtime. The fund

is so small in aggregate that it is not working at all. Should it be augmented now by the addition to it of some of our invested funds? Should we not, at least, add the interest on our invested funds to the Benevolence Fund? And instead of adding further to our invested funds at the present time, should we not be ready to live up to our income annually in an effort to prevent or regulate the socialization of medicine which is hanging over us?

I place these somewhat radical suggestions in the laps of our hard bitten trustees.

The hospital training schools are under the supervision of the State Board of Education and their destinies are guided by a group of five graduate nurses. I think that this group of five would welcome the addition of a few doctors from the State Medical Society to help them in determining the policies of the training schools for nurses.

I wish you would also suggest a job for our Vice-President. He is supposed to assist the President in the discharge of his duties. How would it be to send him in the Fall to some of the annual meetings of the County Societies?

I wish, too, that you would suggest a job for our Vice-Speaker. His energies and abilities are wasted until he assumes the chair.

And finally, a President who has proved his mettle should not be allowed to become innocuous. What do you think of delegating to President Lord the all-important supervision of medical economics?

Two more details I am interested in. Post-graduate study for medical practitioners, and a Speakers' Bureau to supply men for County Medical meetings. Other States feature both of these things with a good deal of success. Some day New Hampshire will probably get in line. Why not now?

CARLETON R. METCALF,
Secretary-Treasurer

SPEAKER SANDERS: This report will be referred to the Committee on Officers' Reports. I will call upon Dr. Graves at this time for a report of the Committee on State Medical Relief.

Report of Committee on State Medical Relief

Your Committee has continued to function effectively in coordinating certain phases of relief as it concerns our members. Most of the questions which have come before it have been those of charges for medical and surgical attention. It can truthfully be said that but a very small percentage of the doctors of the State have taken advantage of the relief situation and have rendered bills which could in no way be justified. This small proportion, however, has caused a certain degree of suspicion to creep in as to the validity of many charges and has demanded an amount of time in checking charges which would not be necessary if every individual member would conform to the spirit and letter of the relief regulations. It is the belief of your Committee that when a doctor persists in overcharging or in rendering unwarranted treatment he

should be eliminated from the rolls of those to whom relief cases may be referred.

It is also our belief that pharmaceutical treatment for which the Relief Administration is to pay should be limited to those drugs and preparations contained in the U. S. Formulary or in the list of New and Non-official Remedies published by the Council of the A. M. A.

Now that House Bill 417 is no more, there is little use in mourning over its demise. The present set-up of primary local administration deserves commendation and since it is now the law we believe it should receive the whole-hearted cooperation of our membership.

Your Committee has held several meetings with the State Relief Commission, separately and in conjunction with a Committee representing the County Commissioners and Overseers of the Poor. Your Committee believes that a real sense of mutual understanding has been developed.

As a result of these conferences the following Rules for State Medical Relief, together with a schedule for medical and surgical charges, have been tentatively agreed upon:

1. In general, a patient may select any reputable physician who resides near at hand. This, undoubtedly, gives better medical service.

2. The fee table in force under Bill 417 shall be tentatively adopted. It may later be modified after a conference with the Commission, the County Commissioners and the Medical Committee.

3. A physician may make his first visit without official authority, but he must confer with the proper authorities before he gives further treatment. This applies especially to emergency cases.

4. Fees for work not specifically covered by the schedules may be adjusted through the County Commissioners or Overseers of the Poor, and the Committee appointed for this purpose by the County Medical Society. Controversies over fees which are covered in the schedule may be similarly adjusted. If in either event, a satisfactory agreement is not reached, the Committee appointed by the State Medical Society (Doctors Graves, Bowler and Coburn) will be glad to consider the matter at issue and make a recommendation concerning it.

When operation is recommended for a patient, County Commissioners or Overseers of the Poor have the privilege of asking for a consultation prior to operation in order to make certain that that recommendation is correct. The consultant will receive a fee of \$2.50 and after his consultation will have nothing to do with the case on which he is giving advice. The consultant may be selected from one of two sources:

A. Any one of the members of the County Medical Committee on Relief.

B. Any one of a group of three members of the senior staff of the hospital to which the patient has been admitted or is to be admitted. Each hospital staff in the State will be asked to select three of its members for this purpose.

5. Because of the depression it seems fair to pay physicians something for work which in previous years they have often done without pay.

6. The Medical Society will advise all physicians not to take financial advantage of this system for relief patients. Doctors should not overcharge, should not do unnecessary operations. Chronic of fenders should be eliminated from the roster.

7. Where a town, county or city physician is employed, a patient will naturally be referred to this physician if the patient has no family physician and has no particular choice.

8. Chronic longstanding cases will ordinarily be cared for by this contract physician.

9 Patients who need hospitalization would or directly be sent to a county hospital if such an institution exists. If they are acute cases treatment at the hospital should be continued by the doctor who has been caring for them before admission. Such a rule would give any reputable physician entree at a county hospital. Any reputable surgeon in such instances may be summoned for consultation or operation. If it is necessary or desirable to send a relief patient to a private hospital the private hospital should arrange a minimum fee.

10 When, for any reason a town city or county physician refers a patient for treatment to another physician or surgeon this physician or surgeon may render a bill in accordance with the accepted fee table.

STATE RELIEF ADMINISTRATION

Medical Fee Table

Office Calls (Not including medicines except those ordinarily carried in usual equipment) _____ \$1.00

House Calls (Covering a 2 mile radius from office beyond which mileage of 15c per mile traveled is allowed. Mileage incurred in attendance on patients under regular care in a hospital shall not be chargeable) _____ 1.50

Night Calls (10 00 P.M. to 7 00 A.M.) _____ 2.00

Major Surgical Operations _____ 5.00 to 50.00

Minor Surgical Operations _____ 1.00 to 10.00

T and A Operations _____ 10.00

Intravenous Antitubercular treatment _____ 3.00

Fractures (regarded as surgery) _____ 10.00 to 50.00

(These fees include aftercare but do not cover charges for anesthetist—\$5.00 to \$10.00—or assistant—20 per cent of operative charge. After-care of cases out of area of operator to be handled by local physician as acute hospitalized medical cases.)

Hospital Calls—Medical Acute per call _____ 1.00
(Mileage not allowed on hospital calls) (No more than three calls per day)

Hospital Calls—Medical Chronic per call _____ 1.00
(Mileage not allowed on hospital calls) (No more than three calls per week.)

(In instances where one doctor is in attendance on a considerable number of patients in any one institution, the maximum fee allowed per day covering all such patients shall be \$10.00)

Maximum charge on any one case for any one illness or accident _____ 100.00
(Mileage charge not to be reckoned as part of this maximum fee)

Inasmuch as there is now less money available than under the former setup it is obvious that medical bills will have to be kept at a minimum if we are to avoid generalized contract care with all of its attendant evils for the sick poor the doctor and the community at large.

Of course no rules or any schedule can cover every conceivable situation, but your special County and State Committees are prepared to deal with these.

We recommend that you accept this report as the working basis upon which medical relief is to stand for the next two years as the fastest one to which an admittedly difficult problem can be handled.

ROBERT J. GRAVES
JOHN P. BOWLER
CLARENCE O. CORNWELL

SPEAKER SANDERS This report will automatically be referred to the Committee on Officers' Reports.

The next report is the Report of the Committee on Maternity and Infancy.

Report of Committee on Maternity and Infancy

Five meetings were held during the year

June 20 1934
August 11 1934
November 28 1934
December 26 1934
April 13 1935

Information was sought by questionnaires. One relating to stillbirths was sent to all physicians reporting stillbirths from September 1 1934 to December 31 1934 only four months.

Stillbirths _____	8*
Questionnaires sent out _____	77
Returns from doctors _____	38
No return made _____	39
No letters sent _____	4
Twins _____	1

The Committee was handicapped by the lack of co-operation on the part of the profession indicated by their failure to return these questionnaires.

The second questionnaire was sent to licensed Lying In Hospitals on conditions incident to the care of maternity cases. The return of this questionnaire was almost 100 per cent.

Number of hospitals having licenses _____	45
Number of questionnaires sent _____	45
Number of hospitals reporting _____	44
(1 letter sent)	

The Committee approved the transfer of licensed lying in hospitals and homes from the State Department of Public Welfare to the State Department of Health.

Maternity The Committee recommends a continuation of the present procedure of studying each death reported as due to pregnancy and maternity. These cases are presented to the Committee by number and are studied and discussed. Deductions are made as to the correct cause of death the number of deaths due to controllable causes the placement of responsibility and obstetrical practices.

Note is also made of the number of deaths reported in a given time by individual physicians these range from those having the high rate of 27 per 1000 to 3 per 1000 to 0.

The Committee feels that in many cases incorrect diagnosis is given as the primary cause of death.

General Conclusions of the Committee That in so far as it is possible

Maternity wards and delivery rooms should be entirely separated from other cases.

Masks should always be worn in the delivery room, in wards and in nurseries.

Chloroform should not be used in obstetrics.

Gloves should be worn at delivery (Five hospitals do not require that gloves be worn in the delivery room.)

Recommends that the minimum standards of prenatal care be practiced by every physician. In some cases women do go to their doctors for prenatal care and are told that it is not necessary to return.

When a patient comes to a physician for care a full check be made on her condition and this recorded. Patients are urged to return regularly.

If this attitude on the part of the medical profession were universal it would greatly aid public education as to the advisability of prenatal care.

The Committee approves the continuation of prenatal education by the State Board of Health and other public health agencies. It is noted that in only four hospitals are routine cultures of nose and throat made on patients, and in only seven are cultures made on personnel.

It is recommended by the Committee that a routine nose and throat culture be made on all new patients and on all personnel before entrance for duty to obstetrical wards or nurseries.

It is noted that only twenty-one hospitals have individual service units for use of patient. A special service unit is recommended for each patient.

It is recommended that visitors to obstetrical patients be limited during the first week.

The Committee recommends that in so far as possible copies of all questionnaires and reports be incorporated in the annual report of the Society.

Maternal Mortality Study, 1934 A complete study was made on twenty-eight cases. In fifteen of these the cause of death in the judgment of the Committee was incorrect. The cause of death in two instances was corrected by the reporting physician.

Maternal deaths reported 1934.....	42
Not studied.....	7
Failed to see doctor.....	7
Complete studies made.....	28
Committee made deductions on.....	28
Diagnosis probably incorrect.....	13
According to physician's statement	
"death not due to childbirth".....	2

The Committee also spent considerable time studying the incidents of impetigo neonatorum and its prevention. The Committee's recommendation for the prevention of impetigo was sent out to all the living in hospitals and physicians.

The Committee feels that it is the duty of the profession and especially this Committee to see that the law is complied with as it relates to the practice of obstetrics by people other than licensed physicians.

Finally, we wish to thank especially Mrs. Mary Davis of the State Board of Health and the physicians who have so willingly cooperated with us in this work.

BENJAMIN P. BURPEE,
CHESTER F. MCGILL,
ROBERT O. BLOOD, *Chairman*

Report of the Committee on Child Health

To the House of Delegates of the New Hampshire Medical Society

The Committee on Child Health is a special committee created shortly after the annual meeting of the Society in 1934. On coming into being it found that a \$40,000 work relief project of the New Hampshire Emergency Relief Administration originally scheduled to survey and report on the health of New Hampshire children had been converted into a project for the betterment of child health. As a part of this project there had been set up by the Emergency Relief Administration a State Child Welfare Committee on Remediable Physical Defects under the guidance of which the sum of \$28,000 was to be expended forthwith for a program of corrective work under the supervision of the State Departments of Health and Education.

The program on remediable physical defects is now practically completed and there seems little probability of its being renewed in its present form. Briefly, while there were inevitably a number of difficulties in the administration of the program, some due to misunderstanding of its intent, and some due to opposition to it, we feel that it per-

formed a useful function in assisting many children who might not otherwise have had medical attention. We also feel that the New Hampshire Medical Society should take the lead in the planning, and actively cooperate in the execution, of a program carrying it on.

The correction of defects falls largely in the group of children who are in the schools in contrast to preventive work which should be mostly at pre-school ages. We feel that the most effective way to reach children of school age is through the schools themselves, and that otherwise many children will not receive the necessary attention. Further, school medical and nursing services are in better position than any other group to discover certain defects and to provide during correction such auxiliary services as home visiting, record keeping and follow up.

The most commonly reported remediable defects of school children are carious teeth, diseased tonsils, and defective vision. The handling of carious teeth should be left to the New Hampshire Dental Society. In regard to diseased tonsils and adenoids, we believe that corrective measures should be undertaken only after careful medical study of each individual case. The school physician, unless he happens to be also the family physician, commonly does not see the child often enough to be in a position to give a considered opinion as to the necessity of tonsillectomy, except in the most extreme cases. Therefore, we do not at this time recommend any State-wide action in this direction.

Defects of vision are much commoner among school children than is usually realized. From the reports of New Hampshire school physicians and school nurses, as well as by analogy from careful surveys of other communities, it is estimated that in this State nearly 2,000 school children are in need of visual correction which they are unable to obtain without aid. While such aid is in theory available through local relief authorities, in practice it is not usually granted as medical care through these agencies is apt to be limited to emergencies and to conditions for which permanent cure may be expected. Aid is therefore usually limited to the activities of local unofficial groups and to the small sum, about \$2,500, which is at the disposal of the Register of the Blind in the Division of Welfare of the State Board of Welfare and Relief. An additional appropriation of \$15,000 annually would enable this department to take adequate care of the most necessary remedial work. We feel that the New Hampshire Medical Society should actively support it by urging that the necessary money be appropriated.

There is a possibility that Federal funds may again be available for corrective work this summer. This Society should have a constructive program to offer for its most effective use. With this in view, we suggest that a Committee on Child Health be appointed for the coming year.

Finally we strongly recommend that the Society take an active and constructive interest in the possibilities of child health work in New Hampshire.

DR. HENRY O. SMITH. Mr. Speaker, at the request of the Secretary of the State Society, your Committee on Amendments to the Constitution and By-Laws has examined our present Constitution and By-Laws, and has prepared for your consideration a certain number of possible changes.

After these amendments have been presented to you I would be very glad to tell the reason why this Committee recommends these various changes.

DR. DEERING G. SMITH I have been asked by the Chairman of Committee on Amendments to the Constitution and By Laws to propose the following amendments

CONSTITUTION

1. Article IV Omit the words "in session" from the heading
2. Article IV Section 1 Omit the words "in session" and "and guests" Insert the word "and before" Honorary
3. Article IV Section 5 Substitute "Society" for "Association."
4. Article VII Section 3 Omit the words "time and" and add the words "and the date by the President and Secretary"
5. Article VIII, Section 3 Substitute "preceding" for "past."
6. Article XII Change the last sentence to read "One delegate-at-large shall be chosen annually by the House of Delegates for a term of three years"

BY LAWS

1. Chapter II Sect. 1 Strike out the words "time and."
2. Chapter IV Sect. 2 Strike out everything following the words "Additional delegate" and add the sentence "The President is authorized to appoint alternates from a county membership temporarily to fill a vacancy after consulting with members from such county"
3. Chapter IV Sect. 3 Strike out all preceding the words "All of the" and strike out the last sentence
4. Chapter IV New Sect. (15) A majority of the entitled delegates shall constitute a quorum
5. Chapter V Sect. 2 Strike out the words "on the first day of the" and insert "at the first meeting of its"
6. Chapter V Sect. 4. Strike out the word "regular"
7. Chapter VI Sect. 2 Rewrite so that after the words "Vice-President shall succeed him" there will be a new sentence "If both the President and Vice-President are, for any reason, unable to perform the duties of the presidential office, such duties shall devolve on the Chairman of the Council."
8. Chapter VI, Sect. 3 Strike out the words "demand and" and the whole of the following sentence
9. Chapter VI Sect. 4 Strike out the words "and he shall keep minutes of their respective proceedings in separate record books."
10. Chapter VI Sect. 5 Insert the word "invested" between the words "all" and "funds"
11. Chapter VII Sect. 8 Add the sentence "It shall consider all questions relating to medical economics and shall report its conclusions from time to time to the House of Delegates"
12. Chapter VIII Sect. 1 Strike out "A Committee on Lay Health Organizations, also the new section 3 relating to the membership of the committee and renumber the following sections Strike out "A Committee on Medical Education and Hospitals" Add "A Committee on the Control of Cancer"

This refers to three amendments adopted by the House of Delegates in 1933 which read as follows

1. That Chapter VIII Section 1 of the By Laws be amended by inserting after the words "A Committee on Scientific Work" the words "A Committee on Lay Health Organizations"
2. Chapter VIII, new Section 3 "The Committee on Lay Health Organizations shall consist of five members whose term of service shall be 30 or

ranged that after its inception, one member shall be elected annually for a term of five years."

3. Chapter VIII Sections 3 to 10 inclusive be renumbered 4 to 11.

13. Chapter VIII Sect. 9 Change, to read "The Committee on Tuberculosis."

14. Chapter VIII Sect. 11 Strike out the entire section.

(Chapter VIII, Section 10 in the booklet "The Committee on Medical Education," etc.)

15. Chapter IX Sect. 10 Substitute "whether" for "if"

16. Chapter X, Sect. 1 Strike out the words "Assessments together with its" and "and list of non-affiliate physicians of the county" and have it read "roster of all officers members and delegates to the Secretary" etc.

17. Chapter X, Sect. 2 Strike out the entire section and renumber the following section.

*18. Chapter XIV Sect. 2 Strike out all but the first sentence

*19. Chapter XIV Sect. 11 Strike out all after the words "Delegates of this society" to the words "and the Secretary"

*20. Chapter XIV Sect. 12 After the words "roster of its members" insert the words "and honorary members" Strike out the words "and a list of the non-affiliated" etc. to the end of the sentence. After the words "such information" insert the words "as may be requested" Strike out the words "and at the same time that the dues accruing from the annual assessment are sent in."

[The first five recommendations for changes in the Constitution were accepted. These five changes will be acted upon by the House of Delegates in 1936. The sixth recommendation for a change in the Constitution was rejected.

The following decisions were reached in regard to recommendations for changes in the By Laws. Suggested changes were referred to the session of the House of Delegates on the following day for final action

It was moved that sections 1 2 3 4 5 6 be adopted

That section 7 be rejected

That sections 8 9 10 be adopted

That section 11 be rejected

That section 12 be adopted with the omission of the words "strike out A Committee on Medical Education and Hospitals" so that a committee on medical education and hospitals is continued

That section 13 be adopted

That section 14 be rejected

That sections 15 16 17 18 19 20 be adopted]

DR. DEERING G. SMITH In addition to the proposals I have the following suggestions that have been made, and I now submit them to you for your consideration

Chapter VIII. New Section. The Committee on Control of Cancer shall consist of members whose duties shall be to study conditions in this State and bring to the attention of the Society and the general public such matters concerning the prevention, prevention and cure of the disease as may seem to them advisable

Chapter VIII. Section 10 Strike out all after the word "members" and add the following "one of whom shall be elected annually for a term of three years"

Chapter VIII. Section 2 Changed to read "shall consist of two members and the President, Vice-President and Secretary Treasurer"

And also the title of this Committee on Public Relations Public Policy and Legislation wherever

(In the booklet Number 15 19 and 20 a list of a Chap- ter VIII, not a Chapter XIV)

found shall be the "Committee on Public Policy"
In Chapter V, Section 2 of the By Laws, in the last sentence after the word "President," insert the words 'or Vice-President'

Report of Committee on Control of Cancer

During the past year your committee has sent to each member of the Society three letters whose content referred to some phase of cancer control. Each letter called attention to one or two particular types of cancer.

The intent of each letter was not to present an exhaustive dissertation on any particular phase but rather to remind the members of a few salient facts pertaining to the diagnosis or treatment of common forms of cancer.

Many physicians undoubtedly consign these letters to the wastebasket, either unread or after a hasty glance over the page. This may be taken as indicating a lack of interest in the subject, for after all it must be remembered that the average general practitioner sees only two cancer patients a year. Why should he be interested? Because it is a well recognized fact that the fate of the cancer patient depends upon the first physician who is consulted. Sympathetic and comprehensive understanding of the basic principles of cancer diagnosis and treatment may save the patient's life.

These single sheet letters, if kept together, will serve as reminders if occasionally looked over during a few idle moments.

New Hampshire is now definitely launched on a comprehensive plan for cancer control, through the Cancer Commission of the State. Eleven Diagnostic Cancer Clinics have been established through the aid of the State Board of Health and your Committee urges the members of the State Medical Society to make use of the facilities for diagnosis furnished at these clinics. There is also available to day adequate and skilled treatment for all cancer patients within the border of New Hampshire. Through money expended by the Cancer Commission, indigent cancer patients have been provided with nursing, hospitalization and treatment.

It still remains the function of the members of the New Hampshire Medical Society to keep so well informed of the progress in cancer control that they may not be criticised because of laxity in early diagnosis and early treatment of cancer patients coming under their supervision.

New Hampshire has the highest death rate from cancer of any State in the Union. In spite of the fact that this may be accounted for by our having the largest proportion of people living into the cancer age, this position in which we are placed is not an enviable one, and is a challenge to the medical profession of the State.

For the past year an appropriation of \$50.00 was made to this committee. For printing, stationery and stamps there has been expended the sum of \$45.47 leaving a balance of \$4.53 which is herewith returned to the Secretary-Treasurer. The Committee requests an appropriation of \$75.00 for the coming year, the increase in the appropriation to be used for printing a small desk-drawer booklet covering very briefly the salient points in diagnosis and treatment of the more common forms of cancer.

GEORGE C. WILKINS
GEORGE F. DWINELL,
HOWARD N. KINGSFORD

Report of the Committee on Mental and Social Diseases

Mental and social diseases still remain two of our most important medical considerations. The

State Board of Health has, through its Division of Venereal Disease, continued its campaign of education and treatment through the giving of lectures, the distribution of literature, and the maintenance of clinics in Berlin, Concord, Dover, Manchester and Nashua. In indigent cases remedies are supplied where there are no clinics, and in cases where the patients are unable to get to the clinic. The United States Public Health Service coöperates with the State Board of Health in this work.

In the field of mental hygiene the State Hospital and the Laconia State School are functioning to the limit of their capacities. Both have made requests of the legislature for additional accommodations. The State School is wanting in proper facilities to care for wheel chair cripples, bed patients, and helpless feeble-minded. They should have an infirmary for this type of cases. The State Hospital needs additional bed space if it is to continue to increase its population. Unless provision is made for the accommodation of a further increase, the Hospital will be forced to limit its admissions as the State School has long been doing. This will mean that cases cannot be sent to the Hospital except by prearrangement, and a waiting list will have to be established. In a previous report, an invitation was extended to physicians to avail themselves of the teaching facilities of our State Hospital. No interest in such has thus far been shown by the doctors, but a group of ministers from various parts of the State participated in a seminar, consisting of twelve weekly lectures followed by case demonstration. An additional mental hygiene clinic has been added to those already in operation, the latest one being at the Hospital itself, to take care of Concord and vicinity. The Hospital has also supplied a psychiatrist for the Industrial School for two days a week. A further extension of the mental hygiene program will be made whenever funds are available.

The past two years the Laconia State School has sterilized twelve persons and the State Hospital forty-two. The Laconia School is forced to adopt a policy of discharging its children rather freely to lessen the pressure of demand for admission, and most of those who go out are as much of a community problem and liability as they ever were.

Psychometric examinations of the inmates of the Industrial School show 40 per cent to be mentally deficient. Through a psychiatric study, an honest attempt is being made at the Industrial School to get at the root of the trouble with the more intelligent group.

The Parent Teachers Association is becoming definitely mental hygiene minded, and with small means is trying to cultivate this field of education. Lack of personnel and funds to support it is our chief difficulty in giving the people of our State the proper understanding of this important subject.

CHARLES H. DOLLOFF,
BENJAMIN W. BAKER,
CHARLES A. WEAVER

Report of the Committee on Public Relations, Public Policy and Legislation

Between November 1, 1934 and April 1, 1935, this Committee held four meetings in Concord and was instrumental, through President Lord, in calling a special meeting of the House of Delegates. At each of the four Committee meetings all members were present.

The most important meeting, perhaps, was that held at the Eagle Hotel on Thursday, December 13, to which Governor Bridges and various other State, County and Town officials were invited. The Medical Society was represented by doctors who are members of the General Court, by the County Secre-

laries and by the members of the House of Delegates. Invitations were sent also to representatives of the Labor organizations the Grange the Manufacturers Association, the Hospital Superintendents Club the New Hampshire Nurses Association the New Hampshire Dental Society and the Women's Auxiliary of the State Medical Society. Nearly 100 people were present.

The subjects for discussion were the following

- (a) Sickness and Hospitalization Insurance.
- (b) Emergency Relief.
- (c) Other Legislative Problems

The primary objects of this meeting were

- (a) To place before the State officials and other guests the opinion of the Committee on these various subjects

- (b) To certify that the New Hampshire Medical Association was actively interested in pending medical legislation.

- (c) To gain the coöperation of other groups who were similarly interested

Your Committee gave consideration both to Federal legislation and to State legislation. Under Federal legislation the chief items were the Wagner Bill and the proposed bill for Health or Sickness Insurance. These two items including the attitude of the American Medical Association were placed before the House of Delegates at its recent special session.

A definite stand was taken on all medical matters pending in the General Court. Representatives of your Committee were in conference at different times with various State officials and twice with Governor Bridges. Representatives were present and spoke at all hearings on the bills which concerned the medical profession. A great majority of these bills were not vital in character.

Your Committee approved the following bills

- (a) To place the licensing of Lying in Hospitals under the Board of Health
- (b) To give the Board of Health authority to license general hospitals (Not passed)

Your Committee helped to rewrite the following bills

- a. To report all gunshot wounds and similar injuries of an unlawful nature
- b. To require general anesthesia to be given in the presence of a third adult person.
- c. To define the practice of chiropody

Your Committee opposed a bill defining and relating to narcotic drugs which added unnecessary red tape to the present Federal law. Up to the time of writing this report (April 9) no State bills have been submitted on Sickness Insurance or antiviral section or on anti vaccination.

The matter of emergency relief has been placed by the House of Delegates in the hands of the special Committee of the Medical Society. Dr. Graves, Dr. Bowler and Dr. Coburn.

Group Hospitalization in which the Medical Society is indirectly interested was turned over to the Hospital Superintendents Club for consideration and action.

On three occasions printed information was sent to all members of the Society concerning the activities of your Committee. Contacts were made with other groups particularly with the New Hampshire Dental Society. Written stories were sent to newspapers throughout the State on three or four occasions and a series of weekly radio talks have recent

ly been given from the Manchester station in coöperation with the State Board of Health.

SAMUEL T. LADD, *Chairman*
JOHN F. GILE,
CHARLES DUTCHAY,
FREDERIC P. LORD,
CARLETON R. METCALF, *Secretary*

Report of Committee on Medical Liability Insurance

Your Committee on Medical Liability Insurance has held meetings conferred by letter and tried in every way to develop a policy for the Society and to aid its membership in protection for malpractice. For three years a continuous study has been made with the hope of enlisting a larger proportion of our membership in finding the best methods of prophylaxis against suits in helping the individual member with his own problems.

There are certain facts which stand out to-day

- (1) Approximately one-half the members of the society are insured with the Hartford Accident and Indemnity Company. How many are protected in other companies we have no means of estimating.
- (2) The incidence of malpractice suits is not decreasing. The loss ratios of the insurance company is close to the point where the business cannot be operated at a profit.
- (3) Other companies are writing this business for our members. We endorse this procedure provided the individual gets the same protection obtained elsewhere. It is a truism that any responsible company can, for a period, underbid the Hartford in getting this business. In all we have done we have tried to make it clear that the purchase of insurance in one company or another was not our business although we have endorsed the Hartford Company. An arrangement with the company had been established before the existence of the Committee. We have had no reason to do otherwise than continue with the Hartford.

In all our study certain difficulties have appeared chiefly those of communication with individual members. A circular letter was therefore sent to every man. Another letter from the office of the Secretary emphasized practically the same points which were as follows:

- (1) The purchase of insurance by the individual physician.
- (2) The importance of avoiding situations leading to suits.
- (3) The important rôle the 'other doctor' plays in the etiology of suits or threats.

From the first it has been plain that these were the weak places in our efforts to lower the incidence of suits and we have collectively and individually pleaded with our fellow physician to keep his own house in order and to help maintain the integrity of his brother's house as well.

We feel that the Committee has come to the parting of the ways. We can continue to send letters to the membership of the Society, we can act as a liaison group between the membership and the Hartford Company, but our efforts to do the really important thing which is to lower the incidence of suits and the costs of insurance in this State must be decidedly limited. That half the doctors in the Society still hold their allegiance to the Hartford shows that there is a group with some cohesion. Could their interest be aroused to a campaign of real educational value we have every confidence that its

effect would immediately be observable in fewer suits and lower cost of insurance

We recommend

That this Committee be discharged and that a subcommittee of the Committee on Jurisprudence be selected to carry on continuously the work of education and the raising of the standards of practice in this State

(Signed) FRED E CLOW, *Chairman*,
Committee on Liability Insurance

Committee on Medical Liability Insurance

FINANCIAL STATEMENT

Appropriated in 1933—but not paid.....	\$100 00
Appropriated in 1934 and paid to chairman.....	\$100 00
<i>Expenses for the years 1932 to 1935 inclusive</i>	
Trip to Vermont (actual expense).....	\$22 56
Rent of rooms for Committee Sessions	
Concord two sessions.....	6 00
Manchester two sessions.....	8 00
Laconia session.....	7 00
Manchester session 1935.....	3 00
Printing and postage 1932-1934.....	19 00
Printing and postage 1934 1935.....	22 00
Expense of questionnaire 1933.....	5 88
	<hr/>
	\$93 44
Returned to secretary-treasurer.....	6 56
	<hr/>
	\$100 00

Report of Committee on Tuberculosis

When the 1934 tuberculosis mortality figures are available, it is our belief that we will record a still further decline in loss of life from the disease. Shall we assume, because the death rate from tuberculosis in New Hampshire is low and is becoming continually lower, that the campaign has been won?

A survey of present time evidence with reference to the disease can result in but one answer, a decided no. Tuberculosis is still the chief cause of death in early adult life in New Hampshire. It is still an important cause of serious economic loss and social disaster in hundreds of families. Among males it is the major cause of death between fifteen and thirty-five, and among females from fifteen to forty-five. Also the disease continues to be a scourge among the working classes, for it is among the housewives of the poorer families, and the workers in our mills and shops, that the tuberculosis germ causes the greatest havoc. Although the gains have been enormous, we are still far from having conquered tuberculosis.

Now is the time for the medical profession and public health workers and social agencies and the general public to unite in the drive to reduce tuberculosis, not only to the position of a minor cause of death, but to an irreducible minimum. The coöperation accorded to the tuberculosis campaign in New Hampshire is most gratifying. Both sanatoria in the State still report waiting lists. However, the delay in admissions has been shortened. Patients more promptly avail themselves of sanatorium treatment.

The educational campaign continues to show its effectiveness in the more prompt and intelligent coöperation of the public at large and tuberculosis patients. There is every reason to believe that continued coöperation in the tuberculosis campaign will accelerate decline in the tuberculosis mortality.

ROBERT B KERR, M.D.,
R M DEMING, M.D.,
A L WALLACE, M.D.

Report of Delegate to A M A

Your delegate was cordially received by the members of the House of Delegates of the American Medical Association and was met everywhere with expressions of the esteem in which the late Dr Sullivan was held. He had served in the House of Delegates for nearly twenty-five years, was well known, and had been quite active in the various sessions.

The democratic attitude of the house and the absence of "steam roller" tactics were very noticeable. All members of the American Medical Association are welcome to attend the sessions of the House and to appear before the various committees. All members of the county societies are automatically members of their State society and the American Medical Association. However, in order to attend the meetings of the scientific assembly, visit the exhibits, and receive the *Journal of the A M A*, they must be made Fellows. All the members are urged to become Fellows, to attend the June meeting at Atlantic City, to support the A M A, and to aid in every way the association's fight against the further socialization of medicine.

The annual session at Cleveland, June 11-15, 1934, was notable because of the large attendance, fine meetings, instructive exhibits, and the achievements of the House of Delegates. Sickness insurance problems were discussed, and the following fundamental principles were suggested as bases for all social experiments that constituent societies of the American Medical Association may attempt:

- 1 All features of medical service in any method of medical practice should be under the control of the medical profession.
- 2 No third party must be permitted to come between the patient and his physician in any medical relation.
- 3 Patients must have absolute freedom to choose a legally qualified doctor of medicine.
- 4 The method of giving the service must retain a permanent, confidential relation between the patient and a "family physician."
- 5 All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician.
- 6 However the cost of medical service may be distributed, the immediate cost should be borne by the patient if able to pay at the time the service is rendered.
- 7 Medical service must have no connection with any cash benefits.
- 8 Any form of medical service should include within its scope all legally qualified doctors of medicine of the locality covered by its operation who wish to give service under the conditions established.
- 9 Systems for the relief of low income classes should be limited strictly to those below the "comfort level" standard of incomes.
- 10 There should be no restrictions on treatment or prescribing not formulated and enforced by the organized medical profession.

Publicity by clinics, hospitals, etc., claiming their work to be of exceptional character due to the ability of the members of their staffs or to their equipment, was condemned by the House. Contract practice was defined, the American College of Surgeons was censured for attempting to legislate for the medical profession, advertising over the radio of drugs and patent medicines was disapproved, and it was voted that radiology should be practiced only by licensed physicians.

At the request of the Committee on Scientific

Work a number of doctors leaders in their respective fields, were approached at Cleveland and tentatively invited to read papers at our annual meetings. Four of these men are appearing on this year's program and Dr. Morris Fishbein will return to New Hampshire in 1936.

A special meeting of the House of Delegates was held at Chicago February 15-16 1935. This meeting was called because of the threat of compulsory health insurance as evidenced by the report of President Roosevelt's Committee on Economic Security the introduction into Congress of the Wagner Lewis bill, and the introduction into the various legislatures of the Epstein bill of the American Association for Social Security. The problem was discussed in all its phases a reference committee was appointed and its report was unanimously adopted.

This report has been published in full in the medical journals but a summary of it may not be amiss. It emphasized that the American Medical Association is the only organization that is truly representative of the entire medical profession of this country which is furnishing the best quality of medical service in the world. Lay control of medical activities was opposed and the so-called Epstein bill was condemned as being pernicious and leading toward social and financial bankruptcy. All forms of compulsory sickness insurance were opposed, although local medical organizations were encouraged to establish plans for adequate medical care through voluntary budgeting. In these plans, the ten fundamental principles suggested at the Cleveland session must be followed. The Bureau of Medical Economics was asked to study the existing plans and to present at the June, 1935 meeting skeleton plans adapted to the needs of populations of various types.

Your delegate has appeared at various meetings of physicians in this State and has urged the necessity of each and every one of us to inform our patients and the public concerning the situation. There is no need for compulsory sickness insurance. It is being advocated by a small group of social workers and the people for whom it is intended are not asking for it. It will lower the standards of medical practice and it is against the best interests of the public. You, delegates from the various county societies are asked to study the situation and to arouse the members of your societies to combat the threats against the present system of the practice of medicine.

DEANING G. SMITH

Following a general discussion of the status of affiliate members Dr. R. W. Robinson moved that Dr. O. B. Cotton of Wolfeboro be made an affiliate member of the New Hampshire Medical Society.

This motion was duly seconded and was carried.

DR. D. G. SMITH. Mr. Speaker, I would like to submit a partial list of recommendations of the Committee on Officers' Reports.

We have studied the report of the Secretary-Treasurer and wish to thank him for the excellent work that he has been doing. We recommend the acceptance of this report and its incorporation into the transactions of the Society. I move the adoption of that part of the report.

This motion was duly seconded and was carried.

DR. D. G. SMITH

We recommend that the Constitution and By Laws be mimeographed or printed next year after the proposed changes have been acted upon and that copies be sent to the officers of the Society and the members of the House of Delegates, County Society Secretaries and members of the Society who request them.

We recommend that a circular letter be sent to the members in the summer of 1936 urging them in the interests of the profession, to become candidates for the Legislature.

We recommend that the Committee on Publications be commended for its efforts to build up the New Hampshire number of *The New England Medical Journal of Medicine*, and that these efforts continue.

We recommend that so far as possible a member should be asked to serve on only one committee.

We recommend that if the State Board of Education and the graduate nurses supervising the hospital training schools wish it, the Committee on Medical Education and Hospitals should cooperate in every way possible.

We recommend that none of our invested funds, either principal or interest, be added to the Benevolence Fund but that we should if necessary expend our income, including that from the invested funds, in an attempt to prevent or regulate the socialization of medicine.

We recommend that the By Laws be amended so as to make the Vice-President a member ex-officio of all committees of which the President is a member ex-officio.

We recommend that the By Laws be amended to shorten the title of the Committee on Public Relations, Public Policy and Legislation, to the Committee on Public Relations.

We recommend that postgraduate study in some form be instituted this year and that the details be worked out by the Committee on Medical Education and Hospitals.

[These recommendations were duly moved, seconded and carried.]

DR. D. G. SMITH. We recommend that the Secretary of the State Society establish a speakers' bureau.

DR. LORD. I move that this motion be laid on the table, for the present.

This motion was duly seconded and was carried.

DR. DYE. I move that we adjourn until eight thirty tomorrow morning, standard time.

This motion was seconded and was carried.

[Whereupon the meeting was adjourned at eleven ten o'clock in the evening.]

MAY 7, 1935

The House of Delegates convened for its second meeting at the Hotel Carpenter, Manchester New Hampshire on Tuesday morning May 7 1935 at eight thirty o'clock.

The meeting was called to order by Henry C Sanders, Jr, Speaker of the House

SPEAKER SANDERS The first business of this meeting will be the roll call

The following members responded to the roll call

Frederic P Lord
Clifton S Abbott
Carleton R Metcalf
John R Perley
Osmon H Hubbard
Arthur W Hopkins
Elmer M Miller
Leslie K Sycamore
H O Smith
Deering G Smith
Harry O Chesley
Jeremiah J Morin
Charles F Keeler
Charles E Buchanan
Henry C Sanders, Jr
Laurence R Hazzard
W J Paul Dye

SPEAKER SANDERS The next business is the reading of the report of the last session

DR HUBBARD I move that we dispense with the reading of the report of the last session

This motion was seconded and was carried

The Speaker then appointed the following Committee on Nominations Clarence E Dunbar of Hillsboro, Harry O Chesley of Strafford, Leslie K Sycamore of Grafton, Charles F Keeler of Sullivan, John R Perley of Belknap

DR DEERING G SMITH Mr Speaker, I think that since we have lost two of the officers of this Society, one a delegate, Dr Pease of Greenville, and the other a Councilor, Dr Pratte of Cheshire, it would be fitting that suitable resolutions on their deaths be adopted by this Society. Therefore, I move that the Necrologist be instructed to prepare these resolutions and submit them to this House for consideration at the session tomorrow morning

This motion was seconded and was carried

SPEAKER SANDERS Are there any other Committees ready to report at this time? I have the report of the Necrologist here which I will ask to have read

Report of Necrologist

The following deaths of members or former members of the New Hampshire Medical Society have been reported since April 1, 1934 —

Leith, Dr William H, Lancaster, N H Died April 3, 1934
Boynton, Dr Harry Hollister, Lisbon, N H Died April 23, 1934
Weymouth, Dr George W, Lyme, N H Died May 30, 1934

Purinton, Dr Herbert H, Somersworth, N H Died June 7, 1934
Sanders, Dr Walter R, Derry, N H Died June 29, 1934
Bakeman, Dr Francis A, Franklin, N H Died July 9, 1934
Stevens, Dr Edwin D, Frankestown, N H. Died August 20, 1934
Tracy, Dr Edward Andrew, Keene, N H Died September 2, 1934
Crosby, Dr Walter T, Manchester, N H Died September 21, 1934
Moran, Dr Bernard George, Nashua, N H Died September 26, 1934
Stone, Dr Melvin T, Troy, N H Died November 23, 1934
Warner, Dr Franklin G Peterborough, N H. Died December 25, 1934
George, Dr Henry P, Claremont, N H Died January 1, 1935
Davis, Dr George M, Manchester, N H Died January 14, 1935
Taylor, Dr Fred B, Concord, N H Died January 24, 1935
Robertson, Dr Frederick M, Bristol, N H Died January 26, 1935
Pratte, Dr Arthur A, Keene, N H Died February 4, 1935
Pease, Dr Byron D, Greenville, N H Died April 3, 1935
Cummings, Dr Frederick A, Concord, N H Died April 4, 1935
Huckins, Dr John C, Plymouth, N H Died April 29, 1935

C E DUNBAR, M.D.,
Necrologist

DR D G SMITH Mr Speaker, I believe that the proposed amendments to the Constitution have to lie on the table for another year

In respect to the proposed amendments to the By-Laws, I move that the action that we took last night be officially confirmed, namely, that Sections 1, 2, 3, 4, 5 and 6 be accepted, that proposal 7 be rejected, that 8, 9 and 10 be accepted, that 11 be rejected, that proposal 12 be accepted with the exception of the sentence which reads "Strike out a Committee on Medical Education and Hospitals", that proposal 13 be accepted, that proposal 14 be rejected, that proposals 15, 16, 17, 18, 19 and 20 be accepted

This motion was duly seconded and was carried

SPEAKER SANDERS At this time, we will listen to a report of the Committee on Officers reports, and I will call upon Dr D G Smith at this time

DR D G SMITH The Committee recommends that the Secretary establish a Speakers' Bureau, if the majority of the County Society secretaries wish it

I move the adoption of that portion of this report

SPEAKER SANDERS The motion before the House is Dr Smith's motion, that the House of Delegates approve of the establishment of a

Speakers' Bureau, which shall be managed by the Secretary in coöperation with the county secretaries.

All those in favor will please signify by saying "aye" There was no response

Those contrary minded will signify by saying "no"

The motion was lost

DR. LESLIE K. SYCAMORE Mr Speaker I move that a Speakers' Bureau be established for the present year and that it be organized by the Committee on Medical Education and Hospitals

SPEAKER SANDERS The motion is that a Speakers' Bureau be established for the present year, and that it be organized by the Committee on Medical Education and Hospitals.

This motion was duly seconded and was carried

DR D G SMITH

For the Committee on Officers Reports in the matter of the Report of the Committee on Child Health we recommend the acceptance of this report and its incorporation into the transactions of the Society

On the Report of the Committee on the Control of Cancer the Committee on Officers Reports recommends the acceptance of this report, and its incorporation into the Transactions of the Society We approve of the work that this Committee has been doing and recommend the appropriation of Seventy Five Dollars (\$75.00) for its continuance

On the Report of the Committee on Tuberculosis and the Report of the Delegate to the A M A. we recommend the acceptance of these reports and their incorporation into the Transactions of the Society

On the report of the Committee on Mental and Social Hygiene, we recommend the acceptance of this report and its incorporation into the Transactions of the Society

We recommend that the Committee on Medical Education and Hospitals be asked to devise means whereby the teaching facilities of our State Hospital, kindly offered to us by this Committee, may be utilized by this society

On the report of the Committee on Public Relations Public Policy and Legislation, we recommend the acceptance of this report and its incorporation into the Transactions of the Society

We recommend that the appreciation of the Society be expressed to the members of this Committee which has worked so earnestly in our behalf

On the report of the Committee on Medical Liability Insurance we recommend the acceptance of this report and its incorporation into the Transactions of the Society

We recommend that the House of Delegates express its thanks to this Committee for its careful study of this question.

On the report of the Committee on Maternity and Infancy we recommend the acceptance of this report and its incorporation into the Transactions of the Society

On the Report of the Committee on State Medical Relief we recommend the acceptance of this report and its incorporation into the Transactions of the Society We wish to express our appreciation for the work of this Committee and we agree with

their beliefs regarding the persistent overcharging by physicians and prescriptions of the remedies We recommend that this Committee inform the County Commissioners and Overseers of the Poor of the existence functions and personnel of the County Medical Relief Committees.

We recommend that this Committee be continued for two years

I would like to say also that we approved most heartily of the beliefs expressed in their report and I think that these should be discussed or should at least be brought to the attention of the members They are as follows

"It is the belief of your committee that when a doctor persists in overcharging or in rendering unwarranted fees he should be eliminated from the rolls of those to whom relief cases may be referred.

"It is also our belief that pharmaceutical treatment for which the Relief Administration is to pay should be limited to those drugs and preparations contained in the U S Pharmacopoeia and National Formulary

May I propose an amendment to the By Laws Chapter VIII, Section I Add a Committee on Medical Economics Chapter VIII New Section Committee on Medical Economics shall consist of two elective members and the Vice President of the Society

[All of these recommendations were duly moved seconded and carried.]

SPEAKER SANDERS Is there any further business to come before the meeting this morning?

DR HARRY O CHESLEY I move that we adjourn

This motion was seconded and was carried

[Whereupon the meeting was adjourned at ten o'clock in the morning]

MAY 8, 1935

The third meeting of the House of Delegates convened at the Hotel Carpenter, Manchester New Hampshire on Wednesday morning May 8, 1935, at nine o'clock.

The meeting was called to order by Henry C Sanders Jr, Speaker of the House

SPEAKER SANDERS The first business of the morning will be the roll call

The following members responded to the roll call

Frederic P Lord
Carleton R Metcalf
Clifton S Abbott
Henry C Sanders, Jr
John R Perley
Osmon H Hubbard
Elmer M Miller
Leslie K. Sycamore
Clarence E. Dunbar
Henry H Amnden
Emery W Fitch
H O Smith
George C Wilkins
W J Paul Dye

[President Lord appointed Emery Fitch, H O Smith and George C Wilkins as alternate delegates for this meeting]

SPEAKER SANDERS The next business of this meeting is the report of the Committee on Nominations, and I will call upon Dr Dunbar

DR CLARENCE E DUNBAR Mr Speaker, the Committee on Nominations wishes to present the following list for your consideration

President,

Clifton S Abbott of Laconia,
Roscoe G Blanchard of Dover,
George S Emerson of Fitzwilliam

Vice-President,

Frank E Kittredge of Nashua,
Fred P Claggett of Newport,
Clarence E Butterfield of Concord

Secretary-Treasurer,

Carleton R Metcalf of Concord

Councilor for Cheshire County for four years,
Frank M Dinsmoor of Keene

Councilor for Merrimack County for five years,
Henry H Amsden of Concord

Councilor for Hillsborough County for five years,
Timothy F Rock of Nashua

Trustee for three years, Alpha H Harriman of Laconia

Speaker of the House of Delegates, James B Woodman of Franklin Falls

Vice-Speaker of the House of Delegates, Cleon W Colby of Exeter

Necrologist, Clarence E Dunbar of Manchester
Delegate to the A M A 1936 1937, Deering G Smith of Nashua

Alternate Delegate to the A. M. A., Emery M Fitch of Claremont

Delegates to the State Societies to be appointed by the Secretary

STANDING COMMITTEES

Amendments to the Constitution and By-Laws,
Henry O Smith, Fred E Clow, Thomas W Luce
Control of Cancer, George C Wilkins, Howard N Kingsford, George F Dwinell

Medical Education and Hospitals, John P Bowler,
James W Jameson, Harris E Powers

Mental and Social Hygiene, Charles H Dolloff,
Benjamin W Baker, Charles A. Weaver
Publication, Carleton R Metcalf, Henry H. Amsden, Warren H Butterfield

Public Relations, Samuel T Ladd, Charles Duncan,
the President, the Vice-President, the Secretary-Treasurer

Scientific Work, Carleton R Metcalf, Frederick P Scribner, Richard W Robinson

Tuberculosis, Robert B Kerr, Robert M Deming,
Arthur L Wallace

SPECIAL COMMITTEES

Advisory Committee on Medical Relief, Robert J Graves, John P Bowler, Clarence O Coburn

Child Health, Colin C Stewart, Jr., Travis P Burroughs, Lloyd H Cogswell

Maternity and Infancy, Robert O Blood, Benjamin P Burpee, Chester F McGill

We also have the names of three men for the Committee on Medical Economics, if that Committee is to be constituted

SPEAKER SANDERS You have heard the report of the Committee on Nominations, gentlemen The next business of the meeting is the election of a President by ballot The nominees are Clifton S Abbott of Laconia, Roscoe G Blanchard of Dover and George S Emerson of Fitzwilliam

DR. H O SMITH Mr Speaker, I move that the Secretary be instructed to cast one ballot for Dr Clifton S Abbott for President of this Society for the ensuing year

This motion was duly seconded and was carried.

SECRETARY METCALF I have cast one ballot for the election of Clifton S Abbott as President of this Society for the ensuing year

SPEAKER SANDERS The next business is to choose, by ballot, the Vice-President The nominees are Frank E Kittredge of Nashua, Fred P Claggett of Newport and Clarence E Butterfield, of Concord

Let us proceed now to the balloting for Vice-President

PRESIDENT LORD Before we do that, Mr Speaker, may I appoint two more alternate delegates, Dr Luce and Dr Ladd for Rockingham County

SPEAKER SANDERS I will appoint Dr Perley as Teller to collect the ballots which are now being distributed on the election of the Vice-President.

DR PERLEY The result of the balloting is as follows Fifteen ballots were cast and these fifteen ballots are all for Frank E Kittredge

SPEAKER SANDERS I declare Frank E Kittredge duly elected as Vice-President of the Society for the ensuing year

The next business is the election of the Secretary-Treasurer for the ensuing year

DR SAMUEL T LADD Am I within my rights when I ask that a ballot be cast by the presiding officer for the candidate for the ensuing year for Secretary, Carleton R Metcalf? If so, I make that motion

This motion was duly seconded and was carried

SPEAKER SANDERS I have cast one ballot for the election of Dr Metcalf as Secretary-Treasurer of the Society for the ensuing year, and I declare him duly elected to that office

DR LUCE I move that the Secretary cast one ballot for the election of the remaining officers and Committees for the ensuing year

This motion was duly seconded and was carried

SPEAKER SANDERS The next business before the meeting is a report of the Committee on By Laws, and I will call upon Dr Henry O Smith at this time.

DR. HENRY O SMITH Mr Speaker, I shall try to be brief I will say that the Committee on By Laws unanimously recommends the adoption of the amendments which were proposed on Monday evening and which were not acted upon yesterday

I move the adoption of these amendments

SPEAKER SANDERS On the first one, that has to do with Chapter V, Section 2, to insert in the last sentence after the word "President" the words "or Vice President"

All those in favor of accepting this amendment to the By Laws will please manifest by saying "aye"

The motion was carried.

SPEAKER SANDERS The second amendment spoken of by Dr Smith has to do with Chapter VIII, Sections 1 and 4 (3 in booklet), to change the title of the Committee on Public Relations, Public Policy and Legislation to the Committee on Public Relations

The motion was carried

SPEAKER SANDERS The third amendment has to do with Chapter VIII, Section 4 (3 in booklet) Change, to read "shall consist of two elective members, the President, the Vice President and the Secretary Treasurer" That has to do with the Committee on Public Relations

The motion was carried.

SPEAKER SANDERS The next change has to do with Chapter VIII New Section "The Committee on the Control of Cancer shall consist of three members, whose duty it shall be to study conditions in this state and bring to the attention of the Society and of the general public such matters concerning the prevalence, prevention and cure of the disease as may seem to them advisable"

The motion was carried

SPEAKER SANDERS The next change has to do with Chapter VIII, Section 11 (10 in the booklet) Rewrite to read "The Committee on Medical Education and Hospitals shall consist of three members, one of whom shall be elected annually for a term of three years"

The motion was carried

SPEAKER SANDERS The next change has to do with Chapter VIII, Section 1 to add "A Committee on Medical Economics", and a new Section to read "The Committee on Medical Economics shall consist of three members of

the Society One of the members shall be chosen annually for a term of three years."

The motion was carried

SPEAKER SANDERS I declare these amendments to the By Laws adopted

SPEAKER SANDERS I think the Committee on Nominations has a recommendation to make in regard to the Committee on Medical Economics

DR. CLARENCE E DUNBAR Mr Speaker, I wish to submit the names of nominees for the Committee on Medical Economics, Dr Frederic P Lord of Hanover for three years, Dr John Gile of Hanover for two years and Dr Timothy F Rock of Nashua for one year

DR. LUCE I move that these nominees for the Committee on Medical Economics, as submitted by Dr Dunbar of the Nominating Committee, be accepted

This motion was seconded by Dr Wilkins and was carried

SPEAKER SANDERS The Committee on Officers' Reports, I believe, has a further report to make, and in the absence of Dr Deering Smith, I will call upon Dr Sycamore of that Committee.

DR. LESLIE K. SYCAMORE: Mr Speaker, on the Report of the President, we recommend that this report be accepted and incorporated into the Transactions of the Society

We wish to express to the President the appreciation of the Society for his able leadership

We recommend that this Society approve in principle, voluntary group hospitalization in insurance, and that our Committee on Medical Education and Hospitals cooperate with any committee from the hospitals

Mr Speaker, I move the adoption of this section of the report

The motion was carried

DR. SYCAMORE We recommend that the suggestion of joint meetings of neighboring county societies be called to the attention of the county secretaries

I move the adoption of that section of the report.

This motion was duly seconded and was carried

DR. SYCAMORE We recommend that the councilors study the suggestion relating to a locum tenens, and report at the next regular session of this House

DR. SYCAMORE We recommend that the State Committee on Child Health, and the Advisory Committee on Medical Relief, confer with

then corresponding committees of the County Societies, regarding their duties and their importance

This motion was duly seconded and carried

DR SAMUEL T LADD Mr Speaker, Dr Wilkins wants the consensus of the House of Delegates as to whether this bill should pass or should be defeated I move that it is the consensus of the House of Delegates that Senate Bill 62 is inexpedient

SPEAKER SANDERS It has been moved and seconded that the consensus of the House of Delegates on Senate Bill 62 is that it is inexpedient, and that the Cancer Commission be allowed to remain with the same personnel, the same number of members, as at the present time

The motion was carried

DR FITCH I move that the matter of entertaining visiting delegates and guest speakers be turned over to the Secretary, with power to act

This motion was seconded by Dr Ladd and was carried

SPEAKER SANDERS Is there any further business to come before the meeting?

DR H O SMITH Mr Speaker, I move that the Secretary-Treasurer, when preparing publication of the Constitution and By-Laws be empowered to have printed the Amendments to the Constitution, which will be acted upon next year

This motion was duly seconded and was carried

DR LUCE I move that the invitation of the Manchester Medical Society for the 1936 Annual Meeting be accepted

This motion was seconded by Dr Robinson and was carried

SECRETARY METCALF Mr Speaker, I have here a report from Mr Pringle of the New Hampshire State Board of Education a summary of the work and expenditures under the Child Recovery Program

The number of children treated for dental defects under the program was 4,418

The number of children for whom tonsil operations were performed under the Child Recovery Program was 1,066

The number of corrections for children with hearing defects, paid for by the Child Recovery Program, was 89

The number of corrections for children with visual defects was 745

The total number of different cases treated under the Child Recovery Program was 6,318

The above services were provided by one hundred and sixty-five persons, listed as follows

Physicians	71
Oculists	19
Optometrists	21
Dentists	54

Expenditures under the Child Recovery Program have amounted to \$19,913 65

The amount expended for clerical and nursing services was \$1,282 00, the amount expended for professional services was \$18,631 65

I think the contrast between the overhead and the actual expenditures for the work performed is quite striking

Mr Pringle adds "The two outstanding features of this program as it has been carried out in New Hampshire, have been the services rendered to children in almost every town and village in the State and the high degree of cooperation given to Miss Murphy and to the local nurses by the Committee of your Society, and the unselfish and wholehearted contribution of service made by individual members of your own and other professional organizations, which have shared in this program"

I move, Mr Speaker, that the thanks of the New Hampshire Medical Society be extended to the Manchester Medical Society, to the guests, the State Board of Health, the Exhibitors, and all those who have contributed to the success of this meeting

This motion was seconded by Dr Ladd and was carried

SPEAKER SANDERS Is there any further business to come before the meeting, gentlemen?

DR RICHARD W ROBINSON I move that we adjourn

This motion was duly seconded and was carried

[Whereupon, the final adjournment of the meetings of the House of Delegates was at ten o'clock in the morning]

MISCELLANY

EARLIER CONSULTATIONS IN CANCER

Wolfeboro, N H

To the Editor

In practically all discussions of the delay in diagnosis of breast tumors the regret is expressed that women cannot be educated to accept earlier consultation (Thus Wilkins and Gile in discussion of Adair's paper before the N H Medical Society, May, 1934) In the hope of increasing the incidence of the early discovery of the "lump" I have for a considerable period urged every woman patient to feel the breasts every time she takes a bath And in questioning these women afterwards I have found that they do remember and abide by it. I know it does not in-

crease carcinophobia in the least. In a few instances lumps were discovered. It is my experience that women little fear an examination once the lump is found. One does not expect a high rate of efficiency from such advice yet there is always the possibility that some patient may discover the early growth that means successful treatment. This, in my opinion is the sort of education we should foster.

FRED ELLSWORTH CLOW M D

Brown House,
May 28 1935

MEETINGS

The spring meeting of the Grafton County Medical Society was held at the Grafton County Farm Tuesday April 30. A symposium on Medical Economics was discussed by Dr Deering G Smith, Nashua, James A Hamilton, Hanover and Dr Richard W Robinson, Laconia.

The annual spring meeting of the Coos County Medical Society was held Friday May 31 at the St. Louis Hospital, Berlin. Dr Albert C Johnston, Gorham spoke on "Neoplasms."

The twenty third semi annual meeting of the Hillsborough County Medical Society was held at the Nashua Country Club Tuesday May 28. The Relief situation in New Hampshire and in Hillsborough County was discussed by Allan M Wilson, Chairman of the New Hampshire Relief Commission. The other two speakers on the program were Dr Abbott L. Winograd of Nashua who spoke on "CreUnism and Its Treatment" and Dr G Philip Grabfield of Boston who spoke on the "Clinical Pharmacology of Recently Advertised Preparations."

The Carroll County Medical Society met at the Huggins Hospital in Wolfeboro Sunday June 9. Dr

W J Paul Dye read a paper on "Endometrioma of the Abdominal Wall." The first Secretary's records of the Society were found recently and a short résumé of the history of the organization was given by Dr Fred E Clow.

NURSES

Miss Mabel L. Parsons formerly Assistant Superintendent of the Elliott Hospital in Manchester was elected Superintendent of the Franklin Hospital recently. Miss Parsons assumed her duties June 1.

Mrs Hazel Smith, of the New Hampshire State Hospital in Concord has resigned her position as Director of Nursing to act as Superintendent of the Pennsylvania Hospital for Crippled Children. Her successor will be Miss Belle G Valentine of Chelmsford a graduate from the State Hospital Nursing School in 1918.

PERSONALS

Dr Hugh H. Galbraith Assistant Superintendent of the State Hospital was a guest speaker at the Kiwanis Club in Rochester April 19. Dr Galbraith spoke on "How to Keep Out of the State Hospital."

Dr Louise M. Paul of Wakefield formerly of Minneapolis has been elected gynecologist on the staff of the Huggins Hospital, Wolfeboro.

Dr John Smith of Weymouth, Mass., has been elected Resident Physician at the Huggins Hospital for the summer months.

DEATH

Dr John C. Huckins died suddenly at his home in Plymouth April 29.

SOME ENCOURAGING STATISTICS

Some years ago Henry B. Elkind investigated the question: Is mental disease on the increase? This is an important question for if it were true that mental disease is increasing it would suggest that the human organism has failed to adjust to the complex conditions of modern life. The conclusion arrived at was that mental disease was not on the increase in the United States at least not since 1913.

Recent studies by Ellen Winston and by a committee appointed by the National Committee for Mental Hygiene add further force to the conclusion of this earlier investigation. The first concludes that there is little evidence to justify the often repeated statement that mental disease is on the increase not only in the United States but in European countries and elsewhere; the latter reveals that as yet there is but slight evidence for the belief that the depression has caused an increase in the incidence of mental disease at least in the United States.

A recent study by Henry B. Elkind and Maurice Taylor undertaken at the invitation of Dr Abraham Myerson in connection with an investigation into the problem of sterilization made for the American Neurological Society elicits a few interesting facts as to the incidence of the more important mental diseases. This study discloses that the only mental disease for which there is any definite evidence of an increase is that associated with cerebral arteriosclerosis. But even this may be questioned as the data for Massachusetts suggest that when the cases of this psychosis are added to those of senile psychosis the curve of incidence flattens out. (It is justifiable to make this addition as autopsies show that it is often difficult in life to differentiate the two forms of psychosis.)

The same study also reveals that one of the more important mental diseases, general paresis, has been showing a definite decrease at least since 1917. Not only do the figures for Massachusetts and New York demonstrate this but other investigations have come to the same conclusion.—Excerpt from the *Monthly Bulletin* published by the Massachusetts Society for Mental Hygiene—May-June 1935.

CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C CABOT, M D

CASE 21251

PRESENTATION OF CASE

First Admission A thirty-six year old Canadian carpenter entered complaining of vomiting, dry mouth and drowsiness

About one month before admission he first began to notice weakness of his legs, especially upon climbing stairs or other similar exertion. This was followed one week later by increasing thirst and dryness of the mouth. At the same time he noticed that he was passing more urine than previously. The dryness of the mouth and weakness increased in severity and nocturia which had been noticed with the onset of his other symptoms became very distressing. At times he was forced to get up six or seven times each night. Four days before admission he felt so weak that he was forced to give up work. He had pains in his back and intense thirst. The evening before admission he began to vomit, and since then was unable to keep anything down. He had no abdominal pain or fever.

His father died of old age. His mother, two sisters and one brother were living and well. There was no history of tuberculosis, cancer or diabetes. His wife was living and well. There were three children living and well. There were no miscarriages.

He smoked about a package of cigarettes daily. He drank no alcohol, although at one time he had drunk somewhat but not to excess.

His past history was negative except for an occasional sore throat during the past two years. He had had no serious illnesses and no operations.

Physical examination showed a slightly undernourished and markedly dehydrated cyanotic middle-aged man with an acetone breath. The pupils were small and fixed to light and accommodation. The teeth were carious. There was moderate pyorrhea. The throat was dry, red, and covered with patches of exudate. A few cervical glands were palpable on the left. The heart was not enlarged to percussion. The sounds were rapid and irregular, both in force and rhythm. The pulse was similar with some dropped beats. The apical rate was 174, the pulse rate 160, showing a deficit of 14. The blood pressure was 175/120. Upon deep in-

spiration a mass could be seen to descend in the right upper quadrant. Both lobes of the liver were palpable below the costal margin. The edge was sharp and palpable 7 centimeters below the costal margin. The surface was smooth. The spleen was not felt. Rectal examination was negative.

The temperature was 98°. The respirations were 20.

Examination of the urine showed a specific gravity of 1.018 and an orange test for sugar. The blood showed a red cell count of 5,100,000, with a hemoglobin of 80 per cent. The white cell count was 13,700, 78 per cent polymorphonuclears. A smear was normal. The platelets were normal in number. Examination of the stools was negative. A Hinton test was negative. The blood sugar was 520 milligrams, the CO₂ combining power 18.3 volumes per cent. The liver function test showed 0 to 5 per cent retention. The icteric index was 5, the van den Bergh normal.

X-ray examination of the abdomen showed considerably less radiance in the upper portion than in the lower, suggesting an abdominal mass the edges of which were not clearly visualized. The lower portions of the kidneys were visualized and appeared rather large. There were numerous areas of calcification lying to the right of the midthoracic spine over the right portion of the sacrum and right ilium. A gastrointestinal series showed no intrinsic disease of the stomach or duodenum. The hepatic flexure was low in position. There was a small defect in the proximal part of the transverse colon which was interpreted as being due to extrinsic pressure. There was no evidence of intrinsic disease in the colon. X-ray of the chest showed marked apical pleural thickening on the left and slight mottling in the right infraclavicular region.

In the Emergency Ward the patient was given 1800 cubic centimeters of 2½ per cent glucose and insulin. His cardiac arrhythmia stopped after treatment was started. A consultant believed that the spleen was just palpable. The patient's condition remained about the same. His diabetes was well controlled. Edema of the ankles which had been present for a few days disappeared and he was discharged twenty-one days after admission on an 1870 calorie diet, 125 carbohydrate, 70 protein and 110 fat. He was also told to take 35 units of insulin daily.

Second Admission, approximately two months later.

During the interval he had been followed in the Diabetic Clinic of the Out Patient Department. His caloric intake was increased and his insulin decreased to 20 units in the morning and 10 units at night. For four or five weeks following his discharge he felt very well and worked steadily as a carpenter. Two weeks before this

second entry he noticed edema of his ankles at night and also that his nocturia was decreasing from four to five times a night to two or three times. About ten days before admission he had some abdominal discomfort consisting of a feeling of fullness. Four days before admission he became orthopneic and dyspneic upon the slightest exertion and was forced to stop work. He passed very little urine during this period but also took very little fluid. He occasionally noticed that his heart skipped a beat.

Physical examination showed the skin to be ashy, cyanotic and slightly tanned. The neck veins were prominent and pulsating. The axillary and pubic hair was moderately diminished in amount. The abdomen was the same as on his previous admission but in addition a definite fluid wave with shifting dullness could be elicited. There was edema of both ankles. The blood pressure was 130/80.

The temperature was 98°, the pulse 100. The respirations were 23.

Examination of the urine showed a slight trace of albumin. The blood showed a red cell count of 4,030,000 with a hemoglobin of 70 per cent. The white cell count was 11,800. 62 per cent polymorphonuclears.

X-ray examination of the chest although not taken at seven foot distance showed a considerably enlarged heart shadow. There was dullness at the right base which extended as high as the angle of the scapula obscuring the outline of the diaphragm on that side and the angle between it and the heart. The shadow appeared to occupy the region of the middle lobe.

On the day following admission a venesection was performed, about 400 cubic centimeters being removed. This produced very little relief. The following day a paracentesis was performed yielding very little fluid. An electrocardiogram on the morning of the third day showed normal rhythm, rate 100, left axis deviation and slurred Q-R-S in all leads. Another taken in the afternoon showed paroxysmal auricular tachycardia, rate 225. T waves were upright in all leads. P waves were inverted. There was a tendency to left axis deviation. He remained fairly comfortable that day. The distention of the neck veins persisted. He voided very little. He died very suddenly early the following morning.

DIFFERENTIAL DIAGNOSIS

DR. FREDERICK T. LORD. It would, of course, be desirable to know whether he had cardio-respiratory manifestations such as cough, shortness of breath, expectoration, wheezing or pain.

So far as the family history is concerned it is negative. The habits are negative except that he has taken some alcohol but not to excess, apparently a feature of the more remote past.

We cannot say what kind of cardiac irregularity this was with the evidence at hand. It might have been frequently recurring extrasys-

toles or fibrillation. Electrocardiogram would have settled that matter. Then, too, with respect to the physical examination, inasmuch as he has small, fixed pupils it would be particularly desirable to know the knee jerks, in addition, particularly in this patient, one would like to know about the fundi with respect to arterial or other changes, and would like to know the condition of the peripheral arteries.

We then learn that he has sugar in the urine. He has a high blood sugar and the evidence up to this point is sufficient to establish the presence of diabetes and diabetic acidosis. A lumbar puncture would be of interest in view of the small fixed pupils. His blood Wassermann is negative. We know, however, that negative blood tests may not mean that the patient has a negative spinal fluid.

Now we come to the x-ray examination.

DR. GEORGE W. HOLMES. There is nothing very striking in the x-ray films in the way of a diagnosis. The films of the gastrointestinal tract show the stomach fairly well filled, and both it and the duodenal cap appear normal. For a man of this age the chest is normal. I see some thickening and some evidence of an infection sometime during life but nothing in the films to make one think of anything other than the past infection. The size and shape of the heart are normal and there is nothing unusual in the appearance of the aorta. We can see the outline of the kidney here. Looking at it from behind, this is the right side there we can see the outline of the other kidney and you will notice that the upper portion is more dense. Then scattered through the abdomen are small dense shadows probably representing small glands along the course of the mesentery.

DR. LORD. From the thickening of the apical pleura on the left the mottling in the right in the frascular region and the calcified abdominal glands, I venture to make a diagnosis of an old pulmonary and abdominal glandular tuberculosis. With the weakness and the tuberculous process one might be tempted to consider Addison's disease. However the blood pressure is 175/120, very high for Addison's disease.

I am puzzled by the term "slightly tanned" because it seems ambiguous. I do not know whether or not he was tanned by the sun. Was the skin of a yellowish brown color?

A PHYSICIAN. His skin was a slightly bluish gray color, not yellow at all.

DR. LORD. He then had a third series of disturbances in addition to the diabetic acidosis and tuberculosis. We have manifestations involving the liver and spleen and I am inclined to think that he has a cirrhosis. However it must be said that more about the story would help in this matter of enlargement of the liver with ascites and edema. It might be due to chronic passive congestion. However the spleen is seldom palpable with chronic passive congestion.

There are no symptoms referable to the cardiovascular system prior to his entrance, so I am inclined to think that it is not chronic passive congestion but that he has a cirrhosis. This discoloration of the skin in connection with cirrhosis would naturally raise a question whether he might not have hemochromatosis. In confirmation of this, microscopic examination of the skin might help, and examination of the urine for hemosiderin. However, nothing is said about such examinations in the record.

He still had a slight leucocytosis. One would like to know the nonprotein nitrogen. One would like to know the blood sugar. X-ray examination at this time showed a considerably enlarged heart shadow.

"The following day an abdominal paracentesis was performed, yielding very little fluid." Nothing is said about the fluid.

DR HOLMES. This is a portable film which is not taken at seven foot distance but probably at a distance of three feet, and there is a considerable amount of magnification. The heart is enlarged but probably not very much. I think there would be some question as to how much. Then at the right base at the angle of the scapula there is homogeneous dullness which extends rather high above the heart. The possibilities are either disease in the middle lobe or fluid in the pleural space, a very high diaphragm on the right side, and collapse. I think we can rule out collapse by the position of the heart. In collapse the heart should be displaced. There is a dome shaped appearance to the diaphragm although everything is rather hazy here and one might easily overlook it. This is a film with a higher degree of penetration. I would like to see this edge a little more clearly before I was certain it was diaphragm. I would rather think that it is not. So I think I can agree with Dr. Loid that this is not a passive congestion. One other thing is the possibility of an infarction, and yet I do not know how to distinguish that at the moment. If I were forced to give an opinion on such poor evidence I think I would have to call that pneumonia, a consolidation of the lobe.

DR LORD. As to the cause of his death, which apparently is unrelated to the other diagnoses, he evidently has a serious cardiac disturbance with orthopnea and dyspnea on the slightest exertion and dies eight days after the onset. With respect to this last illness, the heart is involved. He is cyanotic. He has prominent and pulsating veins in the neck. The heart shadow is apparently enlarged by x-ray. The electrocardiogram shows inverted P waves which have only the significance of ectopic origin. The slurred Q-R-S complexes may be regarded as an indication of cardiac muscular weakness. He has in addition paroxysmal tachycardia but the autopsy will not help us out with that probably. Is this an intrinsic cardiac disturbance or is it ex-

trinsic? It seems to me extremely difficult to make this decision. We have, however, no indication other than his arrhythmia in the first entry that he had a serious cardiac disturbance. There are no murmurs mentioned so that endocarditis seems unlikely. The x-ray and the story do not suggest pericarditis with adhesions. It would be difficult to put it together on any such basis. One other thing, it seems to me, is a painless coronary thrombosis. However, a coronary thrombosis cannot be regarded as explaining the shadow in the right lung field by x-ray and if we are to make one diagnosis then we have to have a disturbance which might produce both these changes in the lung and this pronounced cardiac upset. The one disturbance which would fit into this possibility is pulmonary embolism with resulting changes in the right lower chest region. We cannot be certain that it is middle lobe because we have not a lateral view, as one would like under the circumstances, but on the whole it would seem to me a reasonable conclusion that he might have a pulmonary embolism. I make a diagnosis on this patient of diabetes, of cirrhosis, a question of hemochromatosis, of tuberculosis affecting certain abdominal glands and the lung, probably not concerned in the present situation, and a probable pulmonary embolism which secondarily upset the heart.

DR TRACY B. MALLORY. Dr. Bock, you had a chance to see this patient on the ward. Will you give us your impression about him?

CLINICAL DISCUSSION

DR ARLIE V. BOCK. One significant thing left out of this account is that the enlargement of the liver in the upper abdomen had been present for four years. That was a very difficult thing for us to explain on the basis of cirrhosis, malignant disease or of any common thing. Then the color of the skin that was noted in the second admission, it was a queer ashen gray color, similar to that of cases of poisoning with nitrite compounds of one sort or another. The immediate problem troubling us was the progressive downhill course with diabetes, and severe acidosis bordering on coma. The fact that he had fibrillation on the day of admission which cleared up in a matter of a very few hours struck us all as being unusual in a patient of this age in a condition of diabetic acidosis. We discussed hemochromatosis probably more than any other diagnosis but I was under the impression at that time that hemochromatosis would be accompanied ordinarily by a rather long history of diabetes, and in the cases that I had seen previously the tint of the skin was certainly quite different from this. The huge liver perhaps fitted in with that diagnosis and ruled out ordinary cirrhosis of the liver. We thought malignancy of the liver could be

excluded. We discharged him on that first admission with a diagnosis of diabetes, diabetic acidosis and question of hemochromatosis. I did not see him the second time.

DR. MALLORY: If any one would care to hazard any other diagnoses we should be very much interested in hearing them.

A PHYSICIAN: May I ask Dr. Holmes if those shadows could be pancreatic calculi?

DR. HOLMES: It is possible but I have never seen it. It is on the left side. It is doubtful.

CLINICAL DIAGNOSES

Diabetes mellitus
Cirrhosis of the liver
Congestive failure?
Hemochromatosis

DR. FREDERICK T. LORD'S DIAGNOSES

Cirrhosis of the liver
Hemochromatosis?
Healed tuberculosis of the lungs and mesenteric glands.
Pulmonary embolus

ANATOMIC DIAGNOSES

Hemochromatosis
Cirrhosis of the liver, pigment type
Pancreatic fibrosis
(Bronze diabetes)
Cardiac dilatation
Mural thrombus, right auricular appendage
Hydrothorax, right
Ascites.
Hydropicardium
Peritonitis, chronic fibrous
Pleuritis, chronic fibrous, left

PATHOLOGIC DISCUSSION

DR. MALLORY: The autopsy on this man showed an undoubted case of hemochromatosis. I think you can see even at this distance that this slice of liver is of a deep brown color very much more reddish brown than normal liver ever is. The other slice was dipped in hydrochloric acid and ferrocyanide and the positive prussian blue reaction is obvious.

The gross findings were a greatly enlarged liver, weighing slightly over $3\frac{1}{2}$ kilos. The spleen also was very much enlarged and we were under the impression at the time of autopsy that what had been felt and considered the left lobe of the liver was probably the spleen since the left lobe did not come down below the costal margin. The heart was definitely enlarged. It weighed 450 grams and that like all the other organs when tested with potassium ferrocyanide showed the presence of very considerable amounts of hemosiderin. I doubt however if that in itself was actually the cause of hypertrophy. If you remember he had a diastolic blood pressure of 120. He certainly had a hy-

pertension and I believe the majority of his cardiac hypertrophy and most probably such cardiac failure as he had is more probably due to hypertension than to the deposit of iron in the muscle fibers. The pancreas, as is usual in these cases, was a deep brown color, and that was also true of the retroperitoneal glands. We incised a number of them and did not happen to run across any caseous ones. Whether the shadows noted by x-ray could have been due to iron, I am not sure. If they were, I think the pancreas also should have shown. The lungs were entirely negative except for slight apical scars. There was about 500 cubic centimeters of fluid in the right pleural cavity and the right diaphragm was very high. There was no pulmonary embolism.

A PHYSICIAN: Can you demonstrate any hemosiderin in the skin?

DR. MALLORY: Yes, but in very small amounts.

A PHYSICIAN: Did he have ascites?

DR. MALLORY: There was a very slight amount. We found a few small pockets of fluid walled off by fibrous adhesions, no generalized ascites.

A PHYSICIAN: Is not the degree of iron deposit much more extensive than you are usually able to demonstrate in the average case?

DR. MALLORY: No in any really well marked case of hemochromatosis one would get this amount.

A PHYSICIAN: Can you demonstrate this amount in the liver in the gross in the average case of hemochromatosis?

DR. MALLORY: Yes usually. As a matter of fact the gross reaction is a very sensitive one. You sometimes get intense gross reaction and may be disappointed in the relatively small amount that shows in microscopic sections.

A PHYSICIAN: How often do you see hemochromatosis here in the course of one year?

DR. MALLORY: We get about one very marked case in every two years and about two cases each year in which we discover when the microscopic section has come through mild hemochromatosis which had never been suspected clinically and was not picked up at the time of the autopsy.

DR. BOOK: I cannot conceive of a man dying from the effects of hypertensive heart disease with no clinical evidence of hypertension. The x-ray showed no change in the size of the heart. He had a very rapid final illness and I do not believe you have explained the cause of his death yet.

DR. MALLORY: I am afraid I have nothing else to offer.

CASE 21232

PRESENTATION OF CASE

A white girl nine years old was sent to the hospital because of progressive loss of vision.

over a period of sixteen months, complete for about six weeks. She had had severe headaches for the past six or seven months, mostly in the morning, disappearing after eating. For the week before admission she had vomited several times a day. She had been quite nervous but had had no twitching of the muscles, convulsions or periods of unconsciousness. Recently her appetite had become poor and she had felt weaker.

She had had measles, varicella, scarlet fever and pertussis, all when she was quite young and none very severe.

Physical examination showed a thin, normally developed child, quite bright mentally and alert. She was blind, not even perceiving light. The pupils were dilated and did not react to light. The optic discs were pale and sharply outlined. The retinal vessels were small and there was marked optic atrophy. Eye muscle movements were difficult to obtain. Her teeth were carious. Her tongue showed slight deviation to the left with coarse tremor. The heart and lungs were normal. The knee and ankle jerks were absent. The abdominal reflexes were active. A Romberg test was negative.

X-ray examination of the skull showed that the sutures, particularly the anterior, were widely separated. There was considerable increased prominence of the convolutional markings. There were no abnormal areas of calcification. There was nothing definitely abnormal in the appearance of the sella turcica. The findings were interpreted as those of increased intracranial pressure.

A tuberculin test was positive, a Wassermann negative.

On the sixteenth day the child had a generalized convulsion lasting four minutes.

The next day a combined ventricular-lumbar puncture was done under ether. The initial ventricular pressure was over 700 millimeters but the pressure was stabilized at 360 millimeters. The lumbar pressure was 350 millimeters. Jugular compression gave prompt rise with both needles. Sixty cubic centimeters of fluid was removed and 54 cubic centimeters of air injected. The ventricular fluid showed sugar 75 milligrams, total protein 12, chlorides 734, colloidal gold 1110000000, Wassermann positive. The lumbar fluid showed sugar 66.6 milligrams, total protein 37, chlorides 734, colloidal gold 0111000000, Wassermann positive.

Postoperative x-ray films showed the ventricles incompletely filled with air. There appeared to be diffuse dilatation of the right lateral ventricle.

Her postoperative condition was fair. At 11 30 a. m. she was nauseated and trembling. At 5 30 p. m. because of sudden cyanosis and respiratory failure she was placed in a Drinker respirator for artificial respiration and a ventricular puncture done. Fifty cubic centime-

ters of fluid was withdrawn under great pressure. At 7 30 p. m. she died.

CLINICAL DISCUSSION

A PHYSICIAN: Was there any cell count on the spinal fluid?

DR. HAROLD L. HIGGINS: None was recorded. The fluid was clear and I am pretty sure there was not any increase.

DR. JOHN S. HODGSON: This is the case of a girl of nine years with a history of progressive loss of vision for sixteen months. If the history is correct it suggests at once the probability of something affecting the ocular mechanism, but in what portion one could not tell with the amount of history given. She may have had headache for more than six or seven months. That taken in combination with the history of progressive loss of vision would naturally make us think of brain tumor. If loss of vision were the first symptom we might suspect a lesion in the region of the optic chiasm. I do not know the significance of the fact that the headaches occurred mostly in the morning. One might expect that she would have vomited earlier than a week before admission, but we are not told that, she did.

The examination shows no localizing signs. The pupils did not react to light because she was blind, she could not even perceive light. The optic discs showed atrophy. The neurologic examination was negative. Absence of knee jerks and ankle jerks alone is not of localizing value. When there is increased intracranial pressure in children one usually thinks of trouble in the posterior fossa, the possibility of a cerebellar lesion, and in that connection one might expect to find a positive Romberg. The fact that the Romberg was negative in so far as that goes is against a subtentorial lesion.

The x-ray films showed evidence of general pressure increase. Such findings are not of localizing value. One looks for localizing signs in the form of calcification. The appearance of the sella turcica may be important. The x-rays here report nothing abnormal in the sella turcica. If that finding is correct it would tend to rule out a lesion in the immediate vicinity of the sella. There was general increase of pressure, but there may have been so much widening of the sutures that the pressure exerted on the sella was not enough to cause obvious changes by x-ray.

The presumptive diagnosis is brain tumor. There is nothing in the history or findings to localize it definitely. It seems to me that so far we still have to think of the possibility of a cerebellar lesion and also of the possibility of something in the region of the optic chiasm. In children most brain tumors are in the posterior fossa. Most tumors are either in the midline originating from the floor or roof of the fourth ventricle, some form of glioma, ependymoma or some type of tumor, commonly glioma, in the

cerebellum itself. I do not recall seeing a tumor of the acoustic nerve in a child of that age. It would be very unusual also at that age to see a cerebello pontine angle tumor. I should suspect a tumor in the region of the optic chiasm because of the history of blindness preceding headache.

On account of the presumptive diagnosis of brain tumor and the lack of localization, it was felt that other things besides clinical findings should be resorted to for help. In such cases we perform combined ventricular and lumbar puncture, sometimes with injection of air. In this instance both were done. We felt that combined puncture was safer than lumbar puncture alone. The initial ventricular pressure was extremely high. Normally it is in the neighborhood of 150 millimeters of water, in this instance it was over 700. But by putting both needles and manometers in place and comparing the pressures we found the lumbar pressure to be in the neighborhood of 300, also markedly elevated. We looked for hydrocephalus and for evidence of block between the ventricular and the lumbar needles, just as in spinal subarachnoid block we look for obstruction between cistern and lumbar needles. We tapped the posterior horn of the ventricle as is our custom. There was no evidence of block. So far as that test went it was against there being any tumor in the posterior fossa. Tumors in the posterior fossa frequently cause block which can be demonstrated dynamically, but do not always do it. There are tumors in other regions which can block the cerebrospinal fluid pathways. Frequently that is all we do. But if we are not satisfied with the information from the combined ventricular and lumbar puncture we then inject air. I may say that ventricular and lumbar puncture alone is a fairly safe procedure. Injection of air into the ventricles is however, not so safe a procedure. Air was injected in this case. Sixty six cubic centimeters of cerebrospinal fluid was removed and fifty four cubic centimeters of air injected. Following that x rays were taken. X ray plates showed incomplete filling of the ventricles but there appeared to be diffuse dilatation of the right lateral ventricle. It is not stated whether the left was dilated. From this we should naturally think one ventricle was larger than the other. Certainly it would be against a subtentorial lesion, which would cause hydrocephalus by generalized uniform dilatation of the ventricles.

So far as the evidence which we have goes we know there is increased intracranial pressure. We surmise that there is a tumor. It does not look as though it were in the cerebellar region. It seems as though it were probably higher up because of the early loss of vision and optic atrophy.

She seemed to go through the procedure of

combined puncture satisfactorily. But late in the afternoon of that same day she suddenly developed signs of respiratory failure. On that account she was immediately put into a respirator. Artificial respiration seemed to help. The ventricle was tapped through the previous puncture opening and fluid and air were released. That also seemed to help temporarily. After a while however, it was obvious that nothing could be done. The child died on the evening of that day.

DR. HAROLD L. HIGGINS. What do you think about the positive Wassermann in the spinal fluid?

DR. HODGSON. A positive Wassermann in the spinal fluid may be significant, but in this case I am inclined to attach no importance to it. The blood was negative.

CLINICAL DIAGNOSIS

Brain tumor, unclassified

ANATOMIC DIAGNOSIS

Cerebral tumor,—glioma?

PATHOLOGIC DISCUSSION

DR. CHARLES S. KUBIK. At the autopsy one could see separation of the sutures of the skull. On opening the skull the convolutions were flattened, but strangely enough there was not much of a pressure cone. There was this mass lying anterior to the cerebral peduncles between the two temporal lobes and extending as far forward as the anterior portions of the temporal lobes. This was rather pale, firm in places and soft in others. The surface appeared to be covered with a delicate capsule and was slightly irregular. The anterior part of this fitted into the sella turcica, which it had eroded considerably. The pituitary gland itself was displaced posteriorly and had caused a further erosion just anterior to the posterior clinoids. The lesion had completely destroyed the optic chiasm. The third nerves pass on either side of the mass between the mass and the temporal lobes. They may possibly have been compressed by it. It comes in rather close relation to the olfactory tracts. On cutting the brain we find the mass occupying this space in the longitudinal fissure between the lower surfaces of the frontal lobes. In places it seems to infiltrate them. It completely fills the dilated third ventricle and the foramen of Munro but does not extend into the lateral ventricles. It extends posteriorly as far as the aqueduct but not into the aqueduct or the fourth ventricle. The lateral and third ventricles were enormously dilated.

I should like the opinion of Dr. Holmes in regard to the x ray films in view of the postmortem findings.

DR. GEORGE W. HOLMES. I do not agree with the interpretation. I cannot see the sella tur-

cica There are shadows there that might be the sella, but it is very difficult to outline it at all. Of course, the films are not very good. I should think one would have to interpret them as a failure to show the sella turcica and ask to have them done over again to make sure the sella had not been missed on account of position.

DR KUBIK Microscopically the tumor is not very cellular. It is made up of cells with rather small uniform nuclei with very little cytoplasm and it contains vacuolated areas which probably represent degenerative changes and also islands which have the appearance of colloid or colloid-like material. There are no

mitotic figures. In some places there is connective tissue stroma in the form of trabeculae. This is a phosphotungstic acid stain. It shows sharply stained fibrils which look like glia fibrils and cells which look like astrocytes. The tumor does not look like astrocytoma, and I should not know just how to classify it. The tumor cells have somewhat the appearance of those that one finds in the posterior part of the pituitary gland and in the pars intermedia. The finding of colloid in the tumor is somewhat suggestive, but the pituitary gland itself appears to be normal and not attached in any way to the tumor. It is not a pharyngeal pouch tumor.

The New England Journal of Medicine

SUCCESSOR TO
THE BOSTON MEDICAL AND SURGICAL JOURNAL
Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

COMMITTEE ON PUBLICATIONS

R. L. LEE, M.D., Chairman HOMER GAGE, M.D.
R. B. OSGOOD, M.D. R. M. SMITH, M.D.
F. H. LAHEY, M.D.

EDITORIAL STAFF

RED HUNT, M.D. STEPHEN ROSENBURG, M.D.
JOHN P. BUTTERFIELD, M.D. HANS KINGSME, M.D.
GEORGE R. LINDOT, M.D. BENJAMIN WHITE, Ph.D.
FRANK H. LAHEY, M.D. HENRY R. WHITE, M.D.
SHEDDEN WARREN, M.D. ROBERT W. NYA, M.D.
GEORGE L. TORREY, JR., M.D. ROBERT M. GREEN, M.D.
C. GUY LAMB, M.D. CHARLES C. LUND, M.D.
WILLIAM A. ROGERS, M.D.

WALTER P. BOWEN, M.D. Managing Editor

ASSOCIATE EDITORS

GEORGE G. SMITH, M.D. WILLIAM B. BRADY, M.D.
JOSEPH GARLAND, M.D.

THE NEW HAMPSHIRE MEDICAL SOCIETY

PUBLICATION COMMITTEE

CARLTON R. MITCHELL, M.D. HENRY H. AMESDEN, M.D.
WARREN H. BUTTERFIELD, M.D.

THE VERMONT STATE MEDICAL SOCIETY

PUBLICATION COMMITTEE

WILLIAM G. RICKER, M.D. C. F. DALTON, M.D.
L. H. ROSE, M.D.

SUBSCRIPTION TERMS \$5.00 per year in advance postage paid for the United States. Canada \$7.00 per year. \$10.00 per year for all foreign countries belonging to the Postal Union.

Material for early publication should be received not later than noon on Saturday. Orders for reprints must be sent to the Journal office 5 Fenway.

The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The New England Journal of Medicine 5 Fenway Boston Mass.

MAIMONIDES

In any field of human interest the greatest figures of the past stand like lofty isolated mountain peaks upon which rests the sunlight of perpetual remembrance, while lesser eminences sink into the shadow of oblivion. The consummate geniuses in poetry—Homer, Horace, Dante, Chaucer, Shakespeare, Goethe,—are landmarks to whom all else is referred through the centuries. Such men are 'not of an age, but for all time.' Their greatness transcends racial as well as temporal limitations, and we think of them as colossi in the history of humanity.

So in the field of medicine a half-dozen names remain as perpetual landmarks of progress, from the days of Aesculapius, Hippocrates and Galen, to those of Harvey, Jenner and Pasteur. In the vast hiatus of the Middle Ages which intervenes between these two groups a single personality stands not isolated but preëminent among many lesser figures, the physician phi-

losopher scholar, teacher, and writer, Maimonides.

Moses ben Maimun commonly known by his Greek patronymic Maimonides, was born of Jewish parentage at Cordoba, Spain supposedly on March 19 (O. S.), 1135. In the Gregorian calendar this would correspond with March 30 (N. S.), the date usually assigned for his birth. During the twelfth century, in which Maimonides lived Mahometan Spain was the centre of European civilization, but religious and racial persecution forced his family to flee, first to Fez, thence to Palestine, and finally in 1165 to old Cairo in Egypt. During these years of migration the omnivorous young scholar made himself master of the entire field of human knowledge from its Greek, Hebrew, Arabic, and Roman sources. In the range of his erudition he belongs in another group with such men as Aristotle, Leonardo da Vinci, Roger Bacon, and Jowett, to each of whom the *omne humanum scibile* of his own time was familiar.

At Cairo in 1193, Maimonides became court physician to Othman the son and successor of Saladin as Sultan of Egypt and carried on an extensive practice among all classes in his community. At the same time he was chief rabbi of Cairo and during this period completed his long series of writings which traversed the entire domains of astronomy, jurisprudence, mathematics, philosophy, science, and theology as they then existed. In Hebrew his greatest work is the *Mishneh Torah*, a masterly systematic exposition and codification in fourteen volumes of the entire system of Jewish Law from the Bible to the Talmud and other sources. In the vernacular Arabic, he composed a commentary on the entire *Mishnah*. Most important, most learned, and most interesting of all his works, however, is the *Moreh Hannebikhim*, or Guide of the Perplexed, in which he undertakes to correlate and reconcile Hebrew theology with the Greek philosophy of Aristotle. His chief medical work is the *Pirke Mosheh*, a systematic treatise covering the entire field of medicine, remarkable for its temperateness, perspicacity and good sense aiming to revise and coördinate the Hippocratic and Galenic traditions with the current medical opinions of the time in the light of his own clinical experience as a practitioner. Maimonides wrote also for Othman a series of letters on dietetics and hygiene in which are summed up in 21 maxims the essence of a code of healthful living which would be approved by any physician of to-day.

Among physicians, particular interest attaches to the celebrated prayer, upon whose authorship doubt has been cast but which is usually and probably correctly ascribed to Maimonides. It expresses in almost modern phraseology and feeling the attitude of the physician to his duty, and his desire for en-

cietv in 1896 and retired in 1928. He was a member of the Masonic Fraternity. He is survived by his widow, Mrs. Constance Lawless Rawson, a sister-in-law, Miss Blanche M. Lawless, two nephews, George R. Pulzer of Winchester, N. H., and Malcolm R. Haskell of East Walpole, N. H., and a niece, Mrs. Ellen Haskell of Keene, N. H.

NOTICE

BOSTON CITY HOSPITAL

The Ophthalmic Service of the Boston City Hospital invites physicians to attend the Henry Willard Williams Memorial Lecture Monday, June 24, 1935, at 8 15 P. M., in the Cheever Amphitheatre, by Walter Brackett Lancaster, M. D., President, American Ophthalmological Society (Formerly Visiting Ophthalmic Surgeon at Boston City Hospital).

Subject: Ophthalmology Then and Now

JAMES J. REGAN, M. D.,

Ophthalmic Surgeon in Chief

REPORTS AND NOTICES OF MEETINGS

HARVARD MEDICAL SOCIETY

A meeting of the Harvard Medical Society was held at the Peter Bent Brigham Hospital on the evening of April 16. Dr. Henry A. Christian presided. Dr. Philip Shambaugh presented the case of a thirty year old man who entered with a chief complaint of frequent severe headaches over a period of six weeks. The physical examination was essentially negative except for a slight right facial weakness which was believed to be due to habit. There was a friction rub in the left chest. Lumbar puncture and blood studies were normal. By x-ray both frontal sinuses were clouded, there were signs of an old pleurisy at the left base, and a healed tuberculous lesion at the left apex. The pineal gland was displaced slightly to the left, and there was questionable evidence of increased intracranial pressure. A ventriculogram suggested a small tumor of the third ventricle.

Doctor White presented the second case. A twenty seven year old woman entered complaining of pallor and fatigue, as well as tingling of the fingers and toes intermittently for nine days. On physical examination her skin was of a lemon yellow tint, the eyegrounds showed many small fresh hemorrhages, the neck veins pulsated, there was a gallop rhythm and a systolic murmur at the base. The spleen was palpable. The red count was slightly over one million and the hemoglobin twenty two per cent with a white count of three thousand and a fever of one hundred and four degrees. A blood culture was negative. A smear suggested pernicious anemia, and liver extract was given intramuscularly which caused a reticulocyte response of thirty two per cent at the end of one week. X-ray showed a small area of bronchopneumonia in the left side. Doctor Christian said that this patient was not transfused be-

cause of the danger of a reaction in a patient who is so severely ill. He remarked on the severity of pernicious anemia that is still compatible with life.

Dr. A. H. Gordon, Associate Professor of Medicine, McGill University, Montreal, and Physician-in-Chief pro tempore, Peter Bent Brigham Hospital, spoke on "The Clinical Aspects of Migraine." Migraine means periodic, severe, paroxysmal headaches which in the majority of cases are incapacitating, are sometimes preceded by visual disturbances, and often result in nausea and vomiting followed by sleep. The condition was recognized in the early Christian Era. It has a tendency to attack one side of the head, and is often diagnosed as acute indigestion. Seventy five per cent of the cases begin before the age of twenty five and fifty per cent have other members of their families with the same ailment. It is more frequent in males. The patients are perfectly normal between attacks. There may be unilateral flushing and sweating during the attacks, and often they are preceded by malaise and giddiness, as well as scotomata.

The attacks frequently begin in the morning upon rising. The ophthalmoplegic type in which there is a periodic paralysis of one or more branches of the third cranial nerve is rare. There are certain cases of so-called abdominal migraine with projectile vomiting and pain preceded by lassitude and distaste for food but Doctor Gordon has seen but one case of this. It may appear in patients with migraine headaches. Certain cases are associated with psychical symptoms, loss of memory, etc.

About four per cent of cases faint with migraine and some observers believe that epilepsy and migraine have the same underlying effect. From the point of view of etiology Doctor Gordon said that there is no significant evidence of infection being the etiological agent. Many believe it to be an allergic manifestation and there are occasional instances where food will bring on an attack. The pituitary gland has been blamed, but the evidence is questionable. Some believe that the genital glands are at fault, because of the tendency for this condition to appear at puberty and disappear during pregnancy and at the menopause. The vegetative nervous system may be involved.

In speaking of the treatment Doctor Gordon stressed the importance of a careful history with the exact details of the attack and the accessory symptoms. A complete physical examination with x-ray studies is essential. A basal metabolic rate and a glucose tolerance test should be done. Mental examination is important. The routine of life should be simplified as much as possible, and outdoor vacations often relieve the condition. Errors of refraction should be searched for. Some have found that dietary treatment and peptone injections help occasionally. Few drugs are of any use. Phenobarbital over long periods sometimes is of assistance. During the attack the patient should be given a cup of coffee and put to bed in a dark cool room. Morphine should be strictly avoided, be-

cause of the danger of habit formation. In some cases ergotamine tartrate produces cessation of symptoms. Some have procured marked relief by severing the sympathetic nerve supply to the brain.

Doctor Rackemann discussed the paper briefly and said that there are a few cases where treatment of an allergic condition helps a great deal and he suggested that there may be some connection between the civilized diet and the small energy output which tends to bring on these attacks because such conditions are practically unknown among uncivilized people and are very rare in rural life. Doctor Emery stressed the importance of having eye troubles corrected. There are many things which tend to precipitate attacks in people who have the underlying tendency toward migraine. Doctor O'Hare said that migraine headaches are common in patients who later develop hypertension, but that with the onset of hypertensive headaches migraine headaches tend to cease.

BOSTON CITY HOSPITAL CLINICAL MEETING

A staff clinical meeting was held April 1, at the Boston City Hospital. Dr. Tracy J. Putnam presided. The general subject was "Newer Methods in the Diagnosis and Treatment of Nervous Diseases." Doctor Putnam presented the first paper on "The Treatment of Hydrocephalus by Endoscopic Coagulation of the Choroid Plexus." He briefly reviewed the physiology of the spinal fluid which arises in the choroid plexuses in the lateral ventricles as well as in the third and fourth ventricles. Practically all cases of hydrocephalus are due to an obstruction of flow. Common sites of obstruction are the aqueduct, foramina, or at the point of absorption; the latter being very common. Most attempts to form artificial drainage have been successful and recently surgeons have attacked the source of spinal fluid. There have been a few cases of surgical excision of the choroid plexuses and attempts at the Boston City Hospital to coagulate these plexuses through the endoscope have been made. This procedure causes only slight superficial damage to the brain and produces a definite decrease in the intra-spinal pressure. In the last nine cases there have been only two deaths and the other patients have all definitely improved. It must be remembered that atrophy of the brain due to increased intra-spinal pressure takes place relatively slowly and that if these children are feeble-minded, there is usually a cortical lesion.

Dr. H. Houston Merritt spoke on "The Therapeutic Use of Lumbar Puncture." Physicians are apt to forget that lumbar puncture is of definite use therapeutically and diagnostically. This is especially true in children with the onset of acute infections where there is a temporary overproduction of spinal fluid causing symptoms of meningism. Secondly, this procedure is applicable in cranial injury. In brain trauma lumbar puncture should be done in all cases as it lessens the necessity of operations.

The pressure should be kept low by this procedure and by the use of intravenous glucose. Thirdly, meningitis should be drained just as with other empyemas. In some types a needle should be left in for continuous drainage. Fourthly, lumbar puncture is used in the treatment of some types of syphilis of the central nervous system.

Dr. Merrill Moore spoke on "Simple Methods of Treatment of the Neuroses." These patients are often refused by physicians and therefore go to charlatans. There has been a growing interest among medical men in such cases. Doctor Moore cited one case as an example. This was a thirty-year-old single school teacher who lost her voice whenever the principal went by the room and could not talk when facing her class. A diagnosis of hysterical aphonia was made and she was treated by a series of one-hour talks once a week for twelve weeks. The symptoms had come on after her father had died of carcinoma of the throat. Gradually the symptoms were alleviated by allowing her to express herself. This procedure is similar to a confession and is of therapeutic use in some cases.

Dr. Philip Solomon spoke on "The Results of Treatment of Combined System Disease." There is much disagreement in the literature concerning the treatment of these conditions with liver because central nervous cells cannot regenerate. It must be remembered that there is no standard dose of liver and that a dose which is sufficient to keep the blood picture normal is not necessarily adequate. Twenty-six severe cases were chosen whose blood picture had been brought to normal and three successive examinations at monthly intervals were done. These patients were followed for three years on high doses of liver extract intramuscularly. The results after this time showed that not a single sign had progressed; all cases reported subjective improvement, and improved sensory disturbances. Seventeen per cent of abnormal neurological signs completely disappeared and twenty-five per cent improved.

Dr. Theodore J. C. von Storch spoke on "The Differential Diagnosis and Treatment of Headache." The actual cause of the large majority of headaches is not known. Histamine causes a perivascular edema that stimulates the periarterial nerve plexuses. Arterial hypertension may cause headache as may also meningeal irritation. Stretching of the dura causes a stimulation of the perilarterial plexuses. An examination of the sinuses, ears and other possible seats of focal infection should be made. Headaches may be classified as first, occasional; secondly, acute isolated headaches; thirdly, constant headaches; and fourthly, recurrent paroxysmal headaches. The constant type is a difficult diagnostic problem and brain tumor as well as cardiovascular disease and renal disease should be considered as etiological factors. Recurrent paroxysmal headaches are usually considered as migraine. Ergotamine tartrate has a definite relieving effect in ninety per cent of cases. The dose is one-quarter to one-half of a milligram intramuscularly and by mouth five to ten times this dose.

Dr Myron Prinzmetal discussed "The Treatment of Narcolepsy with a New Drug" Phenyliso-propyl amine stimulates the sympathetic nervous system, and has been used recently in the treatment of narcolepsy. The toxicity and cost are both low and the action continues for thirty six hours. In ten cases of well established narcolepsy which were not helped in most cases by ephedrine, several tests were made with this new drug where doses varying from ten to twenty five milligrams three times a day were given with complete relief of all attacks as well as of catalepsy. The drug is about two and a half times as effective as ephedrine and some patients complained of not being able to sleep at night. Slides were shown demonstrating the chemical similarity of this drug to adrenalin and ephedrine.

CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

The regular Thursday clinic at the Peter Bent Brigham Hospital, April 18, was conducted by Dr A H Gordon of Montreal. The first patient presented was a fifty seven year old Chinaman who left China nine years ago, and who had lost twenty three pounds of weight in three months. He entered with pain under the left costal margin, and weakness. His temperature was of a septic type. Physical examination showed marked emaciation, a mild degree of conjunctival icterus, considerable pigmentation, slight clubbing of the fingers, and the left side of the chest moved more than the right. The right axilla and posterior chest were flat, and the right base showed impaired tactile fremitus, with paravertebral triangle dullness. On auscultation the breath sounds were diminished, and there were a few crepitant râles above the effusion. The abdomen was distended and a furrow extended across the abdomen at the level of the umbilicus, indicative of enlargement of the liver. The liver and spleen were markedly enlarged, the latter being very firm and somewhat rough, but not tender, and with a questionable peritoneal rub on auscultation.

Doctor Gordon submitted a very complete discussion of the causes of enlargement of the liver and spleen. Among others he stressed leucemia, amyloid disease, hemolytic jaundice, polycythemia, Hodgkin's disease, and Kala Azar, since this man came from China. In Kala Azar there is an enlarged liver and spleen with a persistent fever, but in this case it could be ruled out, because he had not been in China for nine years, and he had no leukopenia. Several blood examinations revealed an increasing red count up to six million eight hundred thousand, an increasing white count up to twenty-six thousand and an increasing hemoglobin up to one hundred and twenty per cent. The platelet count was one hundred and sixty thousand, and Doctor Gordon pointed out that Hodgkin's disease is almost always accompanied by a high platelet count so that this condition could be ruled out. A splenic puncture revealed definite tubercles and pleural fluid injected into a guinea pig had confirmed the diagnosis of

tuberculosis as the cause of the pleural fluid. Primary tuberculosis of the spleen is an unusual condition and usually presents marked weakness, a persistent fever, pain in the left upper quadrant and in a large proportion of cases a polycythemia. Splenectomy may be done and frequently gives excellent results. This was done, but diffuse tuberculous peritonitis, and tubercles in his liver were found, hence the prognosis is poor.

The second patient was a thirty six year old man who three days before entry had had a sudden severe headache with alternate chills and fever. The next day his temperature was one hundred and three degrees, and had continued this high for several days and then gradually fell by lysis. His white count was twenty two thousand with eighty per cent polymorphonuclear cells, when presented he showed herpes of the lower lip. This case was a typical lobar pneumonia of the right lower lobe type IV which subsided by lysis.

A third patient, a forty-five year old man, who had been gassed during the war, awoke with an aching feeling all over his body and difficulty in breathing. He developed a pleuritic type of pain and the whole right chest showed increased tactile fremitus with fine râles at the end of inspiration, a typical pneumonia.

Doctor Gordon then discussed some of the general problems connected with the treatment of pneumonia. Pneumonia is a cellulitis of the lungs spreading from the center of the lungs toward the periphery. With regard to prognosis, patients under forty have a better chance, an alcoholic history gives a poorer prognosis, and any heart condition increases the mortality. Types I and IV have a better prognosis than types II and III. Cyanosis, tympanites, mental disturbances, and a rising pulse rate are bad signs.

The use of antipneumococcic serum is of great benefit in treating types I and II, but care should be taken to desensitize patients who are hypersensitive to horse serum. This process takes at least ten hours. Doctor Gordon recommended forty thousand units of pooled serum every four hours until the patient showed improvement or until two hundred and forty thousand units had been given. Everything in the treatment should be conducive to rest, and the patient should not be moved to a hospital later than the fourth day. He should be kept in a semi upright position and should never be allowed to feed himself or to make any unnecessary movements. No purgatives should be allowed on any condition, and Doctor Gordon stressed the importance of leaving these patients alone and not making frequent examinations. One thorough examination at the beginning to establish the diagnosis is necessary, but never disturb them after that, or bring them to a clinic. If the weather permits, they may have fresh air in moderation. At least three thousand cubic centimeters of water should be administered a day. Ample sugar and salty broths are sufficient food. Glycerin and lemon applications and argyrol make

the tongue more comfortable and make parotitis less likely

Morphia should be used in doses large enough to relieve pain as strapping is often ineffective. Oxygen often gives great relief. Circulatory failure is usually not of cardiac origin and these patients are better off without digitalis unless indicated by a heart condition. For circulatory failure cold sponging acts as a medullary stimulant and once or twice daily usually gives marked benefit. Adrenalin is occasionally of value. Doctor Gordon felt that strychnine was helpful. He did not recommend the use of caffeine. Glucose-saline intravenous injections if given slowly are of definite aid. Alcohol since it is a vasomotor depressant should not be used unless in small amounts for its caloric value or in addicts to prevent delirium tremens. Hot fomentations often help tympanites. Delirium may occur during the severe stages and warrants a bad prognosis but the type occurring after the crisis is much less severe. A patient should not engage in work for at least three months after an attack of pneumonia.

CAPE COD HEALTH BUREAU ASSOCIATION

The Cape Cod Health Bureau Association held its annual meeting at Hyannis May 22 with President E. T. Chase in the chair. It will be remembered that this group of health officers and workers planned and secured the establishment of the first health unit in Massachusetts that which includes the whole of Barnstable county. About thirty five persons representing fourteen towns were in attendance. The election resulted in the choice of the following members to serve for the coming year.

President Dr. G. E. Ward, Orleans; Vice-President, Mr. L. G. Howes, Dennis; Secretary-Treasurer, Mr. C. R. Bassett, Yarmouthport; Executive Committee, Dr. R. P. MacKnight, New Bedford; Dr. A. P. Goff, Hyannis; Mr. E. T. Chase, West Yarmouth, and Dr. J. G. Kelley, Pocasset.

Following the installation of officers a number of problems were discussed. Mr. George F. Crocker, Jr., local milk inspector outlined the effect of recent milk legislation which, however for Barnstable County is not very important. Ice cream licenses were discussed at length the facts being that the "Manufacturer" is the man who freezes the mixture and to him a license must be issued while the making of the mixture is another matter requiring a separate license. The two processes are not infrequently carried on in different towns.

The issuing of other licenses was next considered notably that for sale of denatured alcohol and other mixtures for the automobile. It was the consensus that these licenses should be issued by the town licensing board and not by the board of health.

Following the luncheon and a short informal get together of the health workers for the exchange of experiences the speaker of the afternoon, Ralph

Miller Chambers, M.D. Superintendent of the State Hospital at Taunton was introduced. He outlined some of the problems of his work in caring for persons afflicted with mental disease. It was a talk without technical terms presenting facts that lay men as well as physicians should know with reference to the regulations governing commitment, observation, retention and the general principles of treatment. Such matters are often misunderstood by the general public and a part of the duties of a hospital staff should be to give information to the people.

The first state hospital was established in Worcester in 1833 the institution in Taunton in 1854 and several others now exist in locations convenient to sections of the state. They are open to visitors and worthy of study so that the prevalent erroneous ideas that they are only asylums in which the patients are practically confined and undergoing punishment, may be corrected.

Commitment to a hospital for mentally ill persons is a legal procedure on a court order based on the opinions of two physicians and may be merely for a period of observation.

In institutions of this kind in Massachusetts close observation for a couple of weeks is followed by appropriate therapy. The hospital makes use of medicine and surgery when necessary but its general practice includes hydro-occupational- and psychotherapy. Diversional therapy is the term preferred by Dr. Chambers for what is usually called occupational for it gives the individual new interests and a very large part of the planning is to find an occupation that is suitable to the individual. These occupations include not only the manufacture of many utensils, but much of the routine work of the institution. This may include the assignment to the cafeteria, general housekeeping or work-out-of-doors. The greatest possible freedom is given to the patients and much care is taken to secure nurses and assistants with tact, who can avoid misunderstandings. With this idea of help to the individual in mind one can realize the importance of the fact that fully one-half of those committed to the Taunton institution are discharged well or improved within six months.

The address of Dr. Chambers was followed by a question and answer period.

WORCESTER DISTRICT MEDICAL SOCIETY

The Library Committee arranged a formal opening of the new Reading Room at 34 Elm Street on Thursday June 13 at 8:00 P.M.

Irving T. McDonald, Librarian at Holy Cross College and Robert K. Shaw, Librarian of Worcester Public Library gave short addresses.

This was a fine opportunity to inspect the new quarters with its many new volumes and to become acquainted with the arrangements which have been made for the enjoyment and use of the Library.

LATIN-AMERICAN CONGRESS OF PHYSICAL THERAPY, X-RAY, AND RADIUM

The Latin American Congress of Physical Therapy, X-Ray, and Radium will hold its first annual meeting in Mexico City from August 29 to September 5. The National University of Mexico will act as host to their North American colleagues, and the government will participate in extending its hospitality.

To attract American physicians to this Congress, a nineteen day convention cruise has been arranged, with steamer, rail, hotel, and sightseeing costs included in one all-expense fee. The convention cruise and all of its advantages will be available to the physicians, and members of their families and their friends.

Five special tours to the Latin American Congress and return have been arranged by the American Express Company who have been asked to direct the Congress Cruise. The first of these, which is expected to prove most popular, is a round trip by steamer, the SS Yucatan having been especially chartered for the purpose of the Congress.

It will also be possible for physicians to make the round trip by rail, or by steamer.

Special arrangements have also been made for a return trip by rail, including a stop-over at Kansas City, for those who desire to attend the 14th Annual Scientific Session Congress of Physical Therapy on September 9, 10, 11 and 12.

In addition to first-class hotel accommodations in Mexico City, delegates registered for the cruise will enjoy sightseeing trips to principal points of interest in Mexico City, a drive to the pyramids of Buried City of San Juan Teotihuacan, all-day water trips to Xochimilco and the floating Gardens, and to Cuernavaca, and to Toluca and the desert of the LIONS. The outward and returning trips of the cruise will stop at Havana, and Progreso.

The medical activities of the Congress will be held in the faculty rooms of the National University School of Medicine and will be divided into sections representing medicine and surgery, fractures in their various specialties, electrosurgery, fever therapy, short and ultra short wave therapy, light therapy, massage, radium, and x ray therapy and exercise.

The officers of the Congress are Norman Edwin Titus, M.D., president; William Bierman, M.D., first vice-president; Heinrich Franz Wolf, M.D., second vice-president; Madge C. L. McGuiness, M.D., secretary, and Cassius Lopez de Victoria, M.D., executive director.

Delegates to the Congress desiring to present papers will submit the titles of their papers to either Dr. Madge C. L. McGuiness, 1211 Madison Avenue, New York City, or Dr. Cassius Lopez de Victoria, 1013 Lexington Avenue, New York City.

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

CALENDAR OF BOSTON DISTRICT FOR THE WEEK BEGINNING MONDAY, JUNE 24, 1935

Monday, June 24—

8:15 P.M. Henry Willard Williams Memorial Lec-

ture Boston City Hospital, Cheever Amphitheatre

Tuesday, June 25—

12:30-4 P.M. Ward Visit, Massachusetts Eye and Ear Infirmary

Thursday, June 27—

*12 M. Clinico-Pathological Conference Massachusetts General Hospital

12 M. Clinico-Pathological Conference Children's Hospital.

Saturday, June 29—

*10-12 Staff rounds at the Peter Bent Brigham Hospital Open to practicing physicians

*Open to the medical profession

†Open to Fellows of the Massachusetts Medical Society

June 24—Boston City Hospital Henry Willard Williams Memorial Lecture See page 1190

June 24-28—American Urological Association and Western Branch Society, American Urological Association, will meet at the Palace Hotel, San Francisco, California. For details write Dr. Charles P. Mathé, 450 Sutter Street, San Francisco, California.

June 27-29 Inc.—British National Association for the Prevention of Tuberculosis will be held at Southport, England. Persons desiring further information should write to Miss F. Stickland, Secretary of the Association at Tavistock House North, Tavistock Square, London, W.C.1, England.

July 1-23—University of Freiburg 1 Br. will hold a vacation course of the medical faculty. For information address Akademische Auslandsstelle der Universität Freiburg 1 Br., Schwimmbadstrasse 8, Germany.

July 22-27—Seventh International Congress on Industrial Accidents and Diseases, Brussels, Belgium. The American Committee of the Congress is under the chairmanship of Dr. Fred H. Albee, New York, for the Section on Accidents, and that of Dr. Emery R. Hayhurst, Columbus, Ohio, for Industrial Diseases. The American delegation to the Congress will sail from New York on July 8 and visit London, Amsterdam, The Hague and Paris, and, optionally Budapest. Physicians interested in the Congress or in the medical tour in conjunction with it, may address the Secretary, Dr. Richard Kovacs, 1100 Park Avenue, New York City.

August 29 - September 5—Latin American Congress of Physical Therapy X-Ray and Radium. See notice elsewhere on this page.

October 7-10—American Public Health Association will meet in Milwaukee, Wisconsin. For information address the American Public Health Association, 50 West 50th Street, New York City.

October 21 - November 2—1935 Graduate Fortnight of the New York Academy of Medicine. See page 898, issue of May 9.

October 28 - November 1—The Twenty-Fifth Clinical Congress of the American College of Surgeons. See page 1066, issue of May 30.

BOOK REVIEWS

Maimonides (The Rambam) The Story of His Life and Genius J. Münz. Translated from the German, with an introduction by Henry T. Schnitzkind. Octocentennial Edition 1935. 238 pp. Boston: Winchell-Thomas Company. \$1.50.

If this interesting little volume can find its way into the hands of 20th century readers, it will give them a glimpse of the mind and heart of a twelfth century physician that should be very illuminating, if not humilitating. A career pitched in the period of the Crusaders could scarcely escape being a turbulent one. Driven from Cordova, where he was born in 1135, to Fez and from there to Palestine and back to Egypt where he died in 1202, the earlier portion of his life was made uncomfortable through Mohammedan persecution. He inherited, from a distinguished ancestry, great intellectual capacity and industry. His memory was said to have been so retentive that he needed to hear an address only

once and he could remember it all. Probably these are the qualities that make his accomplishments appear so remarkable. He began his literary career at twenty three by writing two manuscripts, one upon the Jewish Calendar and the other on Logic. At about this same time he began his commentary on the Mishnah, the Jewish manuscript of oral traditions. This and the Bible are the oldest Sacred books in existence. Ten years of his life were devoted to the writing of these commentaries which contain many notable chapters in which he sets forth his philosophy. During this entire period he was being driven from place to place and this makes his accomplishments all the more remarkable. His ideals were strongly combated by many of his co-religionists but in the end his teaching profoundly influenced human conduct both among his own people and among the Gentiles. This manuscript was the cornerstone of his later philosophical writings.

His next great accomplishment was along the lines of practical sociological endeavor among his own people whom he sought to strengthen in their hold upon the law as it was handed down to them from Sinai enabling them thereby to bear up under their persecutions and carry on in the fulfillment of their mission. He was tolerant toward those who opposed him and liberal in his willingness to gain knowledge from any source. He was convinced of the futility of the unscientific interpretations of the astrologers maintaining that the only scientific feature about astrology was to be found in the astronomy that was at its foundation. As a result of his teaching and example he was elevated in 112 to the position of the chief Rabbi in Egypt. In addition to his efforts for the social uplift of the people he was able to supplement these endeavors further through his skill as a physician and his renown in this field resulted in his selection as physician to the Court of Saladin.

During this period of his life in Egypt, he was preparing another treatise destined to still further enhance his reputation. In 1180 he brought out his *Mishneh Torah*. This is a codification of the Talmud and is a treatise on Ethics, Religion and Law. In it philosophy, science, the skill of a physician and admiration for the teachings of Judaism and Hellenic wisdom are combined in a remarkable literary production. The summation of its mission was expressed in the words of a contemporary poet, after this fashion:

"Give thy days to peaceful labor
Serve thy God and love thy neighbor."

This work as was the case with the publication of the Mishnah, called forth caustic criticism from less liberal-minded scholars. The doctrines Maimonides enunciated in this book survived however in the main and exerted an influence upon the philosophy of Hegel, Goethe and Spinoza. In 1190 he capped his philosophical studies by a third work known as the "Guide to the Perplexed." This was written for philosophers alone and in it he discusses the existence of God, the creation of the world, the

meaning of evil, the question of free will, the possibility of miracles, the omniscience of God and the definition of ideal life? After passing through a number of controversial storms among his co-religionists particularly the Guide to the Perplexed finally assumed its proper place as the cap-stone of Maimonides' philosophical teaching.

Of almost equal importance with his philosophical prominence was his prominence as a physician. Arabian medicine rose to its greatest heights in the 12th century and was a practical art. Every Arabian student was obliged to follow a course in Medicine and to him it was an adjunct of science.

To Maimonides medicine was a religion and by following its precepts one was better able to lead the "good life." He had to contend with the accumulated superstitions of his own and previous times with which he had no more sympathy than he had for Astrology. He contended that to be a good physician one must have three things: "Knowledge, observation and an open mind." He took up medicine as a means of livelihood after the death of his brother who had been the support of the family. As a writer, teacher or Rabbi, he would accept no pecuniary rewards as it was his belief that no one should take pay for that kind of service. As Court Physician to Saladin, he had an extensive practice in the royal family as well as outside Egypt. He was visited at that time by one of the plagues and Maimonides became so overworked in caring for the sufferers that he was ill for more than a year. Except as his philosophical writings contain a good deal of medical advice, he did not produce any great medical work none at least comparable to his philosophical books. He did write a treatise on Asthma, the treatment of Poisons, a Commentary on Hippocrates' *Causes of Disease*, *Haemorrhoids* and an *Epitome of Medicine*.

Some one has said: "If you want to know medicine, study Hippocrates; if you want to know Hippocrates, study Galen; if you want to know Galen, read the *Epitome of Maimonides*."

The last chapter in this volume treats of Maimonides' private life, a narrative that explains his character as one might expect him to be revealed. His teachings, though 800 years old, might very well be studied to-day and not without profit to men of this generation. Had he been born in the 19th instead of the 12th century and in Germany rather than at Cordova, he might well have exclaimed: "What progress has civilization made", for he would have been subjected to the same sort of persecution that he encountered in his early youth both in Spain and in Egypt. There is much in this volume of help as well as of interest, for any physician.

Aids to Embryology. Richard H. Hunter. Second Edition. 172 pp. Baltimore: William Wood & Company. \$1.25.

The first edition of this admirable little monograph on embryology published in April, 1913.

aimed to give, as compactly as possible, an account of embryonic development with a particular eye to facilitating the understanding of anomalies and malformations. In this second edition the work is brought up to date and harmonized with the latest modern theories. The earlier sections have been condensed, the later ones expanded by various important additions. For the first time in a small textbook, account is given of the development of the carotid sinus. The development of the female genital tract and the myelination of the nerve paths within the central nervous system have been completely rewritten, and the newer views of the development of the face, the thyroid, and the bronchial sinuses have been incorporated. A number of new diagrams have been added, bringing the total of illustrations to thirty-nine. There is hardly a work on this subject, which, within the compass of 165 small pages, contains so wide a range of material information in such compressed and lucid form.

Elementary Human Anatomy Based on laboratory studies Katharine Sibley 360 pp New York A. S. Barnes & Company \$4.50

This new textbook on anatomy is based on the author's experience in teaching anatomy to college undergraduates. It is intended as a foundation particularly for the study of kinesiology and physiotherapy. Especial emphasis is, therefore, rightly placed on the skeletal, muscular, and nervous systems, the consideration of which comprises three-fourths of the volume. The circulatory, alimentary, respiratory, urogenital, and endocrine systems, and the organs of special sensation, are adequately, but much more briefly, treated in the remaining chapters. In the early chapters the bones, joints, and muscles are described and discussed in detail particularly with a view to an understanding of their physiology, with the purpose to aid, thereby, the teachers of corrective physical education in muscle examination and muscle reeducation. This portion of the body is rightly regarded as a motor-mechanism, the proper understanding of whose disabilities should be based upon an accurate appreciation of function. Every chapter is based upon laboratory studies which are to be performed by the students, so far as possible, on living subjects, otherwise by the means of manikins, models, and charts. The illustrations, 213 in number, several of them being in colors, are chiefly selected from other standard textbooks of anatomy and are reprinted by permission of the various publishers.

Jewish Contributions to Medicine in America 1656-1934 With medical chronology, bibliography and sixty-nine illustrations Solomon R. Kagan 549 pp Boston Boston Medical Publishing Company \$5.00

This volume aims to present a statement of the lives and contributions of Jewish Physicians to the progress of Medical Science in the United States

from colonial times to the present day. The first chapter deals with early Jewish physicians in America beginning with the arrival of Jacob Lombrozo in Maryland in 1656. It includes also those Jewish physicians who served in the army and navy of the United States in the Revolution, in the War of 1812, in the Mexican War, and in the Civil War. The succeeding chapters deal similarly with the figures of distinguished Jewish physicians in particular fields,—Internal Medicine, Pediatrics, Neurology, Dermatology, Surgery, Obstetrics, Ophthalmology, Endocrinology, Pathology, Biology, Pharmacology, Roentgenology, Public Health, and the History of Medicine. Altogether there are thus collected brief biographies of some 900 names. Four appendices record some additional biographies, sketches of Jewish Medical Institutions, and of medical philanthropies in the United States, and a medical chronology of important dates from 1656 to 1934. There are appended also a collection of notes, a brief bibliography and an index of personal names and of subjects. In a publisher's note, Dr Maurice Gerstein of Boston emphasizes the labor, care, and time which the author has devoted to gathering the information contained in these pages. Dr James J. Walsh, in his foreword, justly reiterates the important debt which medicine owes to the contributions of Jewish men of science throughout the ages. The book is illustrated with sixty-nine portraits. We have reason to be extremely grateful to the author and the publisher and to all whose labors have made possible the compilation and publication of this admirable contribution to the History of Medicine in America.

Studies from The Rockefeller Institute for Medical Research Reprints Volume 90 649 pp New York The Rockefeller Institute for Medical Research, 1934

This volume of reprints from the Rockefeller Institute contains a wide range of material but a rather larger amount from the Department of the Hospital than usual. Of interest to laboratory workers is the extension to blood lipid and blood phosphoric acid determination to gasometric method of Van Slyke, and a method of explanation of the kidney described by Rhoads. Albert Casey describes a method for enhancement of malignancy in transplantable tumors by the use of a tumor autolysate. An article of general interest is that by Gowen on the aspects of genetic constitution in relation to pathology.

Diabetes Mellitus and Obesity Garfield G. Duncan 215 pp Philadelphia Lea & Febiger \$2.75

This treatise is a digest of present-day opinion and methods intended for the use of the general practitioner and medical student. It is evident from the simple and direct presentation that the author's patients are carefully treated by standard methods. One wishes that more case records and results on diabetic cases were included.

The New England Journal of Medicine

VOLUME 212

JUNE 27, 1935

NUMBER 26

MANAGEMENT OF BRIGHT'S DISEASE AND HYPERTENSION*

BY JAMES P. O'HARE, M.D.†

WHEN the chairman informed me that the subject for discussion should be Nephritis and Hypertension he added—I presume designedly—that you were a group of practitioners. Thus, I take it, was a warning that I should confine my efforts to matters that concern the family physician in his management of such problems. I shall try to do my best to comply with this request.

In order that we may understand each other let me first define the three principal groups into which Bright's Disease is divided

(1) Hemorrhagic or glomerulonephritis originates as a *generalized* anaphylactic inflammatory disease of the capillaries involving especially the capillaries of the kidneys. If cure is not effected in the early stages there eventually follow hypertension, renal failure and death in uremia in two thirds of the cases.

(2) Nephrosis is again a *generalized* disease this time one of metabolism with associated non-vascular degeneration of the kidneys. Recovery may be complete or incomplete leaving the patient with a persistent albuminuria. If death occurs in the nephrotic stage it is usually due to intercurrent infection especially peritonitis or pneumonia. The combination of glomerulonephritis and nephrosis is far more common than pure nephrosis.

(3) The Scleroses, which include vascular hypertension and chronic vascular nephritis or nephrosclerosis are both *generalized* and degenerative in type but they are vascular degenerative. The kidneys are involved to a greater or lesser degree in the progressive ischemia of the various organs. Death from uremia occurs in less than one third of the patients. Heart failure or cerebral accident is common.

Before we turn to the management of patients with these three types of disease let me ask you to bear in mind clearly two facts. (1) These three types tend to overlap and are therefore frequently 'mixed'. For lack of time we will discuss only the pure types. (2) Every one of these diseases are *generalized* disorders in which

the kidneys merely play a part, sometimes major, sometimes minor.

ACUTE HEMORRHAGIC NEPHRITIS

And now for the consideration of patients. Suppose you are called to a young adult from whom you obtain a story that he was apparently well until two weeks ago when he had a rather mild sore throat. Despite the mildness of the throat infection he complained that "it took a lot out of him". Three days ago his shoes began to feel tight and a member of the family noted that he was a bit puffy around the eyes. Yesterday, he recalled that his urine was a bit scanty and dark. Examination discloses in addition to the edema a slight pallor and a pressure of 180/100. Examination of the urine of our patient shows a high specific gravity, a large trace of albumin, red cells in abundance and cellular and granular casts. In such a case blood chemistry determinations are not necessary unless you suspect chronicity or unless a marked and prolonged oliguria becomes a disturbing feature.

What are you going to do for such an acute nephritis patient? Of course he must go to bed.

For how long? he asks. If the patient is fortunate enough to run a course of four to six weeks there is no great difficulty. If the disease drags on, the family must be tactfully but definitely informed that chronic Bright's disease is certain unless every opportunity is given the patient for cure in the early stages. This means bed rest and if necessary, for months. He should not be allowed up until the urine sediments show no red blood cells for at least two weeks. He should then be allowed up gradually. Meanwhile you watch the sediment closely. Many red cells mean a return to bed.

Weeks or months in bed without symptoms try the patience of the patient, his family and your self. If after weeks in bed the only abnormality is the persistence of five to ten red blood cells per high power field and especially if you have reason to suspect that this attack is merely an exacerbation of a chronic condition you need expect no cure. A normal sedimentation rate may prove to be a helpful test in determining the earliest safe time for the patient to get out of bed.

In feeding such a patient there are two car

Read at the Buffalo Academy of Medicine on April 19, 1935.
From the Medical Clinic of the Peter Bent Brigham Hospital, Boston.

†O'Hare, James P.—Assistant Professor in Medicine, Harvard Medical School. For record and address of author see "This Week's is on" page 122.

dinal dietetic principles, (1) limitation of fluids and (2) the avoidance of prolonged underfeeding. In the beginning with the edema in the face, legs, etc., 800 cc of fluid in twenty-four hours is correct. With the cessation of diuresis this level may be increased first to 1000 cc and then carefully and gradually to 1500 cc. Except in very special cases forcing of fluids is no longer good practice. This accomplishes only the rupture of additional glomerular capillaries and in the edema stage merely adds to the edema. During the first two or three days a very practical procedure is to give the patient no solid food but merely 800 cc of fruit juice, water or milk. Two or three so-called "sugar days" with 150 to 200 grams of glucose flavored with lemon juice also makes an excellent start. After this if there is no nausea you may more or less rapidly increase the carbohydrates and other foods until the patient is getting a fairly liberal mixed diet restricted mostly in its fluid and salt content. If all goes well the patient should reach this goal at the end of approximately two weeks. It is quite unnecessary in the average case to determine accurately the protein and salt intake in the diet of the average acute nephritic. It is, however, absolutely necessary to avoid any prolonged underfeeding. At this point let me give you two dietetic axioms for all nephritic patients. (1) A protein ration of less than 600 grams per day for an adult is inadequate because of its deficiency in iron, calcium and phosphorus. (2) Except in specific instances where the level of blood nitrogen is high and you must try to reduce it, the optimum protein ration is one gram per kilo.

Except for symptomatic and special purposes, drugs are practically without value in acute nephritis. The bowels should of course be kept open to a reasonable degree preferably with salines. Diuretics of all kinds are absolutely contraindicated, they are ineffective and often harmful. This statement disposes of the proverbial Basham's mixture. Even its iron is not indicated because as yet there is no real anemia.

Special drugs and other procedures may be indicated by special conditions. Suppose this patient of ours did what one of mine once did. After a day or two of headache he gradually became very restless, jumped out of bed and ran wildly around the house. Such a psychotic picture is of course not a true uremia but an encephalopathy which is, at times, accompanied by convulsions and other nervous manifestations. The correct interpretation of these facts should suggest the great value of bleeding or intravenous or intramuscular magnesium sulphate.

What more can we do for our acute nephritic patient? Obviously we must protect him against all intercurrent infections. Suppose he already has infected teeth or tonsils. When should

these foci of infection be removed? Except when necessity demands immediate action it is wiser to let the more chronic infections ride until convalescence is thoroughly established. Removing tonsils and other focal infections early in nephritis serves only to open up old channels and to add new toxins to stir up greater activity in the kidney. After the patient is quite well or is showing only minimal signs, I favor removal of the tonsils in every case that has a history of sore throats, poor looking tonsils or glands in the neck.

Occasionally in the very toxic acute nephritic, a serious anuria develops. In such the all-important therapy is to ignore completely the question of edema. An edematous patient is never toxic. Give the patient plenty of fluid by vein or under the skin. Fortunately in most cases secretion starts again about the time when you begin to worry. I have never seen anything accomplished by decapsulation. The recommendation of Volhard of light x-ray therapy does not seem sensible.

HYPERTENSIVE ENCEPHALOPATHY

Suppose that this young patient of ours has not been cured of his acute nephritis and that you have been following him along for a matter of two or three years. During that time his pressure has risen so that it is now high in both systolic and diastolic phases, his color has remained good and there is no anemia. He has continued to run an albuminuria but obviously can concentrate well and his phthalein test and B U N are normal or close thereto. For a few days he had been complaining about headaches which do not respond to ordinary therapy. Suddenly, without further warning, he goes into a series of generalized convulsions and lapses into coma. Is this uremia? To some men, hypertension, albuminuria, convulsions and coma always spell uremia. But in our patient we have said that there was no anemia and renal function was good. Furthermore, the onset of this episode, apart from the headaches, was entirely acute. All of these factors point away from uremia. Has he had a cerebral hemorrhage? This, of course, is more likely with his headaches, his hypertension and his normal renal function. However, he shows no signs of paralysis. Of course, he may still have had a cerebral hemorrhage in a silent area. But we must bear in mind a third and most important possibility, hypertensive encephalopathy, whose nervous manifestations vary from mere headache to psychoses, coma and death, is somewhat more common. Let us assume for the sake of discussion that we are satisfied that he has had no cerebral hemorrhage and that his symptoms are due to an encephalopathy. What is the treatment for such a patient? Naturally, the first thought is morphine. Prompt venesection of 500 cc is of great value. Magnesium sul-

phate in any form but especially intravenously or intramuscularly occasionally produce extraordinarily good results. An intravenous injection of 20 cc of a 10 per cent solution or an intramuscular injection of 15 cc of a 20 per cent solution every two hours is the best method of using this drug. It apparently acts through relaxation of the spastic smooth muscles and at times there may be a very disturbing drop in pressure. In one of our patients the pressure fell in a very few moments from 240 to 160 mm. Lumbar puncture, because of the marked increase in the intracranial pressure in these cases is another worth while therapeutic measure. The fluid should be removed slowly and not below 200 mm of water pressure.

UREMIA

Let us assume that in spite of treatment the course of this patient of ours was gradually downward into a progressively increased renal insufficiency. He now complains of great fatigue, shortness of breath, occasional nausea and vomiting, headache and some blurring of vision. Examination discloses a true pallor, a retinitis ammoniacal breath, a somewhat enlarged and rapid heart rates at the bases, slight edema of the shins and a well marked hypertension. Obviously you now have two problems. The shortness of breath, the edema and the rapid heart indicate congestive heart failure and the need for bed rest and digitalis. The other problem centers around the renal insufficiency indicated by the anemia and the ammoniacal breath. Without doubt if you had access to a chemical laboratory the B. U. N. would be found high. What can you do for these uremic manifestations? Of course the patient belongs in bed not merely because of his heart but because at rest in bed he breaks down less tissue protein to add to the nitrogen retention. What about his diet? A Karel diet or modified Karel diet for two or three days may be very helpful for both the heart and the kidneys. After this, if not vomiting the patient should be placed on a high calorie diet with plenty of the protein sparing carbohydrates. The proteins may be limited for a time to 40 grams. The salt should be restricted to that already in the food when it comes to the table with perhaps an additional 2 or 3 grams to offset the loss of base through vomiting and through combination with toxic acid bodies. This unsafe low level of protein should be continued only until the nitrogen retention has been reduced as low as you can get it. Then this ration should be gradually stepped up to 60 grams or to the optimum of one gram per kilo.

How about fluids? Here we are in a dilemma. With kidneys as bad as his an increase of fluids to 3000 cc or more might dilute the retained nitrogen bodies to a level at which they could be excreted. However if excessive amounts

of fluid are allowed you run the risk of upsetting the heart. I have seen at least three cases in which excessive enthusiasm for treatment of the retained nitrogen by forcing fluids has been followed by pulmonary edema. You had better compromise on 2500 cc and watch the heart closely.

But what about a patient who is vomiting and excreting but little urine? You cannot feed him a mixed diet of correct proportions. The most important therapy for such a patient is to get fluid into him in any way you can, preferably intravenously or under the skin. He must receive at least 2000 cc in the twenty four hours. If fluid is given subcutaneously, saline, with or without 5 per cent glucose, is very helpful. If given intravenously you may use saline with 10 or even 20 per cent glucose in addition to correct the loss of chloride through vomiting. How about food in such a case? The best rule to follow is to take the patient off all restrictions and let him have small amounts of any food that he cares for or that an intelligent nurse can get into him. Experience shows that a man who craves something apparently absurd may retain it when he will not tolerate simpler and more natural foods. Usually with adequate administration of fluids the vomiting is controlled and one may then get back to an appropriate dietetic régime.

As in the acute stages the place of drugs in the late stages of hemorrhagic nephritis is distinctly limited. Their use is largely for relief of symptoms. Digitalis may be necessary for the condition of the heart. Diuretics of all kinds are contraindicated. Iron used from time immemorial has had little if any effect. Possibly the administration of a good iron like ferrous sulphate between meals rather than at its usual place immediately after meals might result in greater absorption. Liver, or liver extract, in my experience, is without value. If underfeeding has existed an appropriate diet may result in improvement in the red count and hemoglobin. Transfusions are at best of temporary benefit. Other drugs that have some value for symptomatic purposes are the various sedatives for restlessness, sleeplessness, etc., dilute HCl for a day or two for vomiting, bicarbonate of soda or calcium lactate or gluconate for the acidotic dyspnea, calcium gluconate or magnesium sulphate by needle for twitching and morphia, ether and chloroform for the convulsions. Sponging of the body with vinegar or weak acetic acid is the best remedy for the intolerable itch. Ergotamine tartrate, a somewhat dangerous drug, is also said to be of value for this condition.

Catharsis, if one is careful to avoid exhausting the patient, is of considerable value in ridding the bowel of the toxic phenols, indican, etc., that seem to be rapidly absorbed in this late stage. The old fashioned sweat bath is both

futile and dangerous. Many times have I seen serious acute pulmonary edema follow such treatment. Venesection and plasmapheresis are also worthless.

NEPHROSIS

Suppose now another young adult comes to your office with a complaint of swelling of the face and feet. He tells you that he has not been feeling normal for months. On examination you find edema of the face, ankles and shins, and perhaps a little fluid in the abdominal cavity. The urine shows again a high specific gravity, a large trace of albumin and in the sediment plenty of casts. But, you will quickly note that there are certain peculiarities in this case that distinguish it from acute hemorrhagic nephritis. In the first place there is no history of any provocative infection. The onset of the disease has been insidious. Examination shows no increased blood pressure and the urine is not red or smoky. You will recall that in hemorrhagic nephritis the sediment showed a predominantly cellular quality with numerous red blood cells, etc. In this nephrotic patient there is, by contrast, an almost complete absence of red cells although casts may be extremely numerous. Fat, free and on casts, may be present and some of these globules are doubly refractile.

If you think about these peculiarities the diagnosis of lipoid nephrosis is obvious. Pure cases are extremely rare and a combination of glomerulonephritis and nephrosis is more common. In such a patient slight hypertension and red blood cells in the urine give the clue. The conspicuous features are, however, not these but the edema and the excessive albuminuria.

Confirmation of the diagnosis will soon be evident clinically by the fact that the edema becomes more and more important and fails to disappear promptly as in acute hemorrhagic nephritis. No diuresis occurs on the usual treatment of acute hemorrhagic nephritis, the oliguria persists. The albumin likewise does not diminish and if you quantitate it you may find that the patient is excreting in his urine from 5 to 20 grams of protein per day. These three features, the persistent edema, the oliguria and the excessive albuminuria are the chief clinical features of the disease.

These features are enough for the clinician. If, however, you have laboratory facilities, confirmatory evidence is soon available. There is but little change in the non-protein elements, the blood fats and calcium. The serum protein is low, the globulin relatively high, the cholesterol high and the calcium low. The basal metabolism, too, is often below normal.

How should you manage such a patient? Although the lines of treatment are the same as in hemorrhagic nephritis, bedrest, diet, drugs

and other procedures, there are distinct differences.

The patient should be kept in bed, if necessary for months, until the edema is completely under control.

The most important dietetic consideration is not to underfeed. My plan is to try to replace the protein already lost through the urine by giving the patient daily 120 grams or more of protein for two weeks. The protein intake is then dropped to the more acceptable one gram per kilo plus the average amount of albumin lost per day in the urine. The salt is limited to that which is in the food when it comes to the table with a little additional on unpalatable items.

Fluids are limited to 800 to 1000 cc until the edema is gone. If oliguria remains marked, one may try Volhard's plan of limiting the intake on a given day to the level of the output of the previous day.

At first sight one might expect that the above procedures would result in a replacement of the blood proteins, an increase in the urine and a disappearance of the edema. Unfortunately this direct attack on the problem is rarely successful, perhaps due to the fact that we are dealing with a perverted protein metabolism. The protein in the urine is not serum protein as in hemorrhagic nephritis and it is highly probable that the blood protein in such a patient is also different from normal serum protein. Therefore we have to resort to other procedures.

Before speaking of these let me call your attention to the need for the utmost conservatism in the interpretation of the effect of any therapy. Spontaneous diuresis is the rule in this disease. The mere fact that a certain therapeutic measure has been followed by a diuresis is no certain evidence of cause and effect. Granting this, let us proceed to the diuretics.

Any diuretic may be effective in a given patient and all may fail. On the whole the xanthin group have been least effective although I am beginning to believe that when given to the point of nausea they are more effective than we have thought. Our experience with the "Acid Ash Diet" and the "High Potassium Diet" has been limited and not particularly favorable. Potassium chloride or calcium chloride in large doses is at times effective. Ammonium chloride by itself may produce diuresis although it is usually combined with the mercurials. Urea in doses of 60 to 100 grams per day is perhaps the best diuretic that can be given by mouth. One must be careful, however, of such large doses in patients who have a combination of glomerulonephritis and nephrosis. The B U N may rise under such treatment to very disturbing levels.

The extremely "high alkali régime" recommended by Osman and Izod Bennett sometimes

works when all others fail. Perhaps its effect is due to its high potassium content. Thyroid extract, in my hands, even with large doses has not been successful.

In the average case one has to resort to injections of diuretics or substances aimed at increasing the osmotic tension of the blood. These include the mercurials, hypertonic glucose or sucrose, transfusion and acaia in 15 per cent solution. The first are perhaps the most useful and the most generally used. Salyrgan in doses of 0.5 to 2 cc., intravenously or intramuscularly, every three or four days following an artificial acidosis produced by ammonium chloride, is perhaps the best of them all. Mercuprin, a combination of mercury and a xanthin is said to be equally good.

In some patients tapping of body cavities and even drainage of the skin and subcutaneous tissues by incisions or Southey tubes become necessary.

Above all else these patients must be protected against infections because the commonest cause of death among them is not renal insufficiency but intercurrent infections especially peritonitis, erysipelas and pneumonia.

While some of these patients respond to the procedures listed above more of them do not. The effect of therapy is often extremely discouraging. However, few of them die. Most of them after months of great discouragement lose their edema as a result of therapy or by spontaneous diuresis. They may then clear up completely. Some progress into a typical glomerulonephritis. Some merely show a persistent albuminuria for years.

VASCULAR HYPERTENSION AND CHRONIC VASCULAR NEPHRITIS

Let us now turn to the third type of disease—vascular hypertension and chronic vascular nephritis. You are all familiar with the general lines of treatment and it will be unnecessary to do more than sketch certain important features.

What are you going to do with a business man of forty-four who, in considerable distress of mind, comes to you because an insurance examination has disclosed a hypertension? A careful history reveals that, apart from a nervous temperament and a tendency to worry, he has no symptoms. An equally careful examination shows that, with his blood pressure of 190/100, there are only slight changes in the retinal arteries, a slightly enlarged heart doing a perfectly good job, and a negative urine.

Such a patient requires very careful handling, preferably by the intelligent family physician. He knows not merely the patient but also his family and the extra-medical problems that play such an important part in the patient's condition and in his management. Tactless, enthu-

siastic, ultrascientific treatment at this stage may bring about irreparable damage. He may be come what I choose to call a "blood pressure addict", living the rest of his life under the cloud of his hypertension.

A man of this sort needs to be set straight and calmed down from the shock of finding that he has high blood pressure. It is often wise to belittle the importance of the discovery and to indicate to him that he "merely needs to make the wheels go round a bit more slowly. Without doubt his circulatory defect will take care of itself." By no means should you at this visit do more than to try to gain his confidence and get him calmed down. No program for reduction of his pressure should be instituted and no medication ordered except a mild sedative like bromide or phenobarbital. If the patient has obviously been working too hard a bit of vacation golfing or fishing or a boat trip is often most helpful.

After this he should be seen only often enough to be sure that the vascular disease is not progressing rapidly to involve the heart, kidneys, brain, etc. Under no circumstances should stress be laid on the height of the pressure. Figures for the pressure should not be mentioned. Lessened responsibilities, more relaxation, occasional vacations, plenty of rest and a moderate amount of outdoor exercise to maintain good cardiac and general body tone should be encouraged. If he is overweight judicious reduction often helps. As far as diet is concerned he need only watch out for the size of the meal and avoid any excessive amount of fluids. In fact, excesses of all kinds are taboo. His motto should be the very simple one of "Moderation in Everything."

But you ask "Aren't you going to try to reduce his pressure?" Theoretically you should. Practically it depends on many factors, such as the height of the pressure, the condition of the arteries and heart, etc. If you succeed in getting your patient to work less and rest more, to worry less and play more you will have brought about far more reduction of his pressure than by all the other methods of direct action. Frankly most of these do not work satisfactorily. With the exception of the sedatives and therapy necessary for treatment of symptoms I have practically discarded them all. To save time let me merely enumerate the various procedures that have been tried and found wanting. All the nitrites, bismuth subnitrate, the iodides, benzyl benzoate, theobromine and allied drugs, atropin and the various belladonna derivatives, garlic, akneton, calcium salts, mistletoe extracts, potassium sulphocyanate and the various cholagogic organ extracts such as liver, pancreas, ovarian and thyroid, high frequency currents, venesection, lumbar puncture, low protein diets and

Allen's low salt régime No doubt a fall in pressure may follow any of these procedures but I am thoroughly convinced from a considerable experience with these patients that no great and permanent reduction occurs and that the effects produced are mostly those of psychotherapy

In the last few years various attempts have been made to reduce excessive pressure by such procedures as thyroidectomy, unilateral adrenalectomy and denervation of an adrenal, renal denervation, extensive removal of spinal nerve roots and ganglionectomy, x-ray of the pituitary, etc With the exception of adrenalectomy for an adrenal tumor and x-ray of a basophile adenoma, the best that can be said for them is that they are either of no value or are still in the highly experimental stage Some procedures like those of Adson and of Page do hold out hope for the future

Of all the remedies administered to patients with hypertension the most successful are without doubt the various sedatives from bromide to chloral Most of us are forced to rely on these and the tactful organization of the patient's activities

Certain symptoms, however, do require and do respond to specific treatments The morning headaches, dizziness and other head symptoms often respond to one of the following procedures, hot coffee on awakening, a saline purge, aminophyllin or phyllin with or without phenobarbital intrait de gui, venesection, and the dangerous sweat bath

The treatment of the various cardiac difficulties are beyond the scope of this article It is sufficient to say that hypertension offers no objection to the use of digitals if and when it is indicated

In brief, the management of this type of patient throughout the slow or rapid progress of his arteriolar disease is one that still depends largely on the intelligent and tactful regulation of his activities, the relief of symptoms, and the treatment of the various complications that arise from his vascular disease and the ischemic effects resulting therefrom

In only 10 to 30 per cent of patients with vascular hypertension does the ischemia become

marked enough in the kidneys to be a matter of importance In these, renal insufficiency becomes evident and we have chronic vascular nephritis I need not dwell on the treatment of such a condition because, for all clinical purposes, it is the same as that just described for vascular hypertension plus the treatment of the progressive renal insufficiency Much of the latter was suggested in our discussion of uremia. One word of caution is, however, pertinent Keep sharp watch on the extra-renal lesions, the small vessels in the eyes, the condition of the heart, etc Even though definite renal insufficiency exists, death is more probable from the heart or the brain

In closing let me leave with you these thoughts The intelligent management of any disease depends on a tripartite knowledge, (1) knowledge of the general course of the disease, (2) knowledge of the particular patient and (3) knowledge of your therapeutic weapons In no disease is it so necessary to utilize such a trinity as in Bright's disease

One must appreciate that what we call Bright's disease is a group of diseases at times only distantly related Of more practical importance is the fact that there is not one form of Bright's disease which is pathologically or clinically entirely renal Frequently the extra-renal lesions and problems are far more important than those of the kidneys

In no disease is it so necessary to know your patient thoroughly as it is in the hypertensive types of Bright's disease You can't run him through one of these modern docketing machines and give him a stereotyped therapeutic formula on a card Would you prescribe frequent vacations for the man who is working for a wage and has a young dependent family to care for? Would you offer him one of these extensive and risky sympathectomies? Of course not The more you know of the patient and his environment the more intelligent will be your treatment

Finally, the proper management of the patient demands a knowledge and a conservative evaluation of all the available therapeutic measures, together with their appropriate application to the particular problems of your particular patient

The Massachusetts Medical Society

PRESIDENT'S ADDRESS*

BY WILLIAM H. ROBEX, M.D.†

THE high honor of serving as President of the Massachusetts Medical Society carries with it the privilege of a close range view of the problems of the rural, the small town and the city practitioner, the opportunity for a wide variety of experiences and the means of gaining a new sense of the solidarity of our profession. Fortunate is he who has a second term in office, for the first year is spent very largely in learning to walk and the next in efforts to improve one's gait. In 1933 there were many moot questions, many serious issues before us but within the past twelve months we have been confronted by aggravations of these questions and issues as well as by a series of new and complicated problems, so that the activities of the second year have far exceeded those of the first. The new social philosophy—the kaleidoscopically changing economic theories and experiments which tend to disrupt the traditional modes of thought and behavior have had their effect on us in ways that we have been no more prepared to cope with than has any other group or profession but in the midst of this confused and confusing welter of thinking we continue to stand for the preservation of those unchanging basic principles without which no such society can maintain its existence: our ethical standards, our unremitting endeavor for a higher quality of service and our acceptance of the best scientific achievements. These must suffer neither violation nor diminution in the process of working out a solution of practical problems involving decisions upon the course we are to pursue in the immediate future. If anyone ever thought that the medical profession had crystallized in a fixed form, the developments of the past decade and especially of the past two years have brought a clear realization that the trend has steadily been toward disarranging the established pattern, radical measures and half-digested methods have been promulgated some of which are totally out of harmony not only with our principles, but are, I believe, contrary to the best interests of the public whom we serve. So serious is the situation that the American Medical Association and many of its component societies have called special sessions of their governing bodies to discuss and if possible to clarify it. Yet while it is much discussed it is very little clarified. When the late Dr. W. W. Keen began his oration at the Pasteur Centenary

he said that for two months he had read thought and talked about Pasteur until he felt that he was thoroughly pasteurized. To-day one reads in almost every medical journal, daily newspaper and current magazine articles on health insurance and social medicine until one feels that one is being thoroughly socialized. The subject however is an old one, the depression has merely fanned the smoldering embers into a flame as yet not very bright here but bright enough to make clearer to us conditions as they exist in Germany, Austria and other European countries where health insurance has been in force for years. The mass of reports being received does not express unanimity of opinion as to its success anywhere. Henry Sigerist, Professor of the History of Medicine at Johns Hopkins University says, "The German sickness insurance is far from perfect. It could be greatly improved, as no doubt it will be. Deficient as it may be, it has served the peoples' health well for half a century and no European country that has adopted a sickness insurance plan could ever afford to abandon it." On the other hand Gustav Hartz a prominent labor leader in Germany who is vouched for by the Bureau of Public Relations of the Medical Society of the State of New York, makes enlightening and even appalling statements based on a long and intimate relation with the workings of the plan pointing out the misuse of so-called benefits to the workman, the fact that doctors are driven to mass practice, the temptation to trickery, and the colossal administrative expense, for sickness insurance is bound up with accident, old age and unemployment insurance, all of which Hartz says proved to be "Germany's greatest inner trouble in the time of her hardest social crisis." Not only is the cost excessive but time lost from labor is often equally so due in part to malingering and in part to the physician who needlessly protracts treatment. The total number of days of sick benefits in Germany has increased two and one third times since 1913 and its cost of administration has almost trebled so that it has become necessary to add a state subsidy as well as to decrease the time and amount of benefits 40 per cent, and in periods of stress by even as much as 70 per cent. In Austria the income level has been gradually raised until the well-to-do are allowed to insure and the doctors paid absurdly low rates, must assume their care. Furthermore the methods of examination and the form of treatment as in Germany are definitely stated in a book of regulations for insurance

*Presented at the Annual Meeting at Boston, June 8, 1934.
†Dr. William H. Robex, President, 3100 Massachusetts Medical Society, for record and address of author. The Week is a June 1, 1934.

purposes. In both countries dissimulation and hypochondria are bred and the prescribing of medicine becomes immoderate.

The *American Medical Association Bulletin* published in March 1935 an article by Dr P Dally of Paris which gives the details of the French system since 1930 when the social insurance law became effective after ten years of study. The salaried worker or assured has the right to select the bureau to which he wishes to belong, he and his employer each pays one half of the cost, no financial aid being given by the government but it does verify the accounts. The patient may choose his own physician and may change to another in case of dissatisfaction. The attending physician is free to prescribe any medication or apparatus needed for the individual case, the insured himself pays the physician a fee mutually agreed upon, and although there is no fixed fee-table for medical services, the payment for illness and drugs seems simple and satisfactory. The officers of bureaus have the right to check as far as possible any attempts at fraud on the part of the insured or his physician, and unscrupulous physicians may be prosecuted. The insured must allow inspectors, civil and medical, designated by the distributing bureau, to verify the character and genuineness of his illness. No marked improvement in the organization of health work has been accomplished in France, it has failed to organize hygiene or to aid medical progress, but the principles on which the medical profession has always insisted, have been incorporated in the law, viz, free choice of a physician, liberty of prescription of every drug indicated by the illness, and direct payment by the patient, one recognized and important advantage is the feeling of security in case of illness. Statistics show that everywhere on the continent there has been a rising cost for both worker and employer to meet the social insurance demands.

In Great Britain where the law of 1911 was succeeded by an improved enactment in 1924, it is compulsory for all manual workers, and for non-manual workers earning less than £250 a year to have sickness insurance, these combined groups constitute over a third of the total population and there are 300,000 more who have some sort of voluntary insurance. Nearly half the British physicians are engaged in insurance as well as in private practice, and although lay managers are now prohibited from entering into the business of building and conducting medical institutions, they still exercise other functions of control. The desire of the insured "to get something back" encourages an increase of minor and imaginary ailments with a consequent upward tendency in morbidity and a consequent growth of suspicion and indifference on the part of many doctors whose duties are so time-consuming that the seriously ill

often do not receive proper attention. The British system, like the French and Scandinavian, has avoided some of the more glaring defects which exist in Germany, but there is present the same excessive use of medication, the same increase in neuroses, the same rising of claims for sickness benefit. The answer to the American Medical Association questionnaire is to the effect that the character of medical service in England has not been markedly changed, while some doctors may have become more slipshod and a good deal of perfunctory work is done during epidemics, the insurance authorities make the claim that others, in consequence of an assured income, have established laboratories and are giving improved service, but these are probably exceptions, for the majority have less time for and less interest in research.

In foreign countries not only is the population homogeneous, or nearly so, but there is one central government which adopts and enforces legislation. Between these European units and our forty-eight states with their heterogeneous populations and their widely divergent conditions no true parallel can be drawn. A Federal health insurance law is unthinkable—or seems so to most of us—and no two states are in agreement, as is evident from a study of the suggested plans. A few instances are here with submitted showing what is being done in this country.

The Michigan State Medical Society has expended a large sum of money in studying conditions abroad and in its own state and has published elaborate documented findings, but it has decided to wait until the plans of President Roosevelt and his Committee on Economic Security have been completed and made public before it makes any recommendations. It considers, however, that the outlay has been justified, since it occupies the position of knowing more about its state and itself than any similar society in the country. Other state medical societies are going forward in testing different methods of providing medical care for, and a means of payment by, the low-income group.

New York has been very active in many departments of medical economics, and what it has been doing is worthy of greater notice than is possible here, the hospitalization bill which was signed by the governor in 1934 was put into operation a few weeks ago and includes in its administration fifty per cent of the beds in more than fifty hospitals. The plan proposed by the County Medical Society of New York to inaugurate low rate payments has met with such slight response from the members that action has been deferred until fall. The Medical Society of the State of New York has gone definitely on record as to its position relative to the

major question. Its President at Albany this year said, "The acid test of experience condemns compulsory health insurance schemes wherever they have been tried. The medical profession disapproves of the proposed law because this method of handling medical care is damaging to the patient and disastrous to the doctor. Physicians as a class are better qualified to speak than any other group, as to the effects of a compulsory health insurance law on the community, and the Medical Society of the State of New York, representative of the physicians of the state, rejects the project because it will not work, and because what it will bring to the community is quite the opposite of the expectation of its well wishing proponents."

The Physicians Equity Association of America with headquarters in New York is launching a campaign, the merits of which there has not yet been time to investigate. One of its chief aims is to forestall socialized medicine through measures to correct abuses in medical surgical and other departments affecting public health but we shall soon know more of this movement and to what extent it is being sponsored by the best men in the profession.

In the *Journal of the American Medical Association* for May 4, 1935 the disturbing situation in California has been given in detail by Dr. Morris Fishbein under the heading "California and Sickness Insurance." The report indicates that physicians bear the heaviest burden for the sick giving freely of their services to those unable to pay and lowering their fees to those able to pay only partially. The physicians carry 70 per cent of the total amount due for services to families with an annual income under \$3000. A study of the situation in California indicates to anyone having any understanding of our American political system the difficult path which the leaders of medicine in that state are treading and it is hoped that they will find their way out before their profession is engulfed in a régime which will lower the standards of medicine and the quality of medical care. As Ray Lyman Wilbur says "There is no possibility of building up an artificial medical robot that can provide care by dropping in a piece of money."

An example of the effect of governmental control of the practice of medicine by lay boards has been observed in New Hampshire's care of the indigent sick. Instead of using the long established welfare and social agencies as recommended by the State medical society, new directors and subdirectors with an army of clerks were appointed to manage the medical care of the indigent. New to the work much time and money were consumed while they learned their duties, and, in addition these lay directors exerted their authorized but inexpert control over the practice of physicians. If a

special test was required to arrive at a diagnosis it could not be made until the permission of the local office director was granted. If in his, or more frequently, her, opinion, the test was unnecessary it was not allowed and the physician had to arrive at a conclusion with less accuracy. In one area a physician was favored by the director and therefore had many patients a month with their accompanying fees, while his nearby colleagues were ignored. In some instances physicians repeatedly carried their treatments to the full limit of fees in every case. Pressure on the part of the State medical society was necessary before the two latter injustices were eliminated. Allusion was made last year to the situation in New Hampshire, but these additional phases seem worthy of mention as medical insurance is being forced more and more upon our attention.

The problem of the care of the indigent sick in our own state and the unfair burden placed upon their physicians is one that is in need of prompt solution. The Society is not unmindful of what some of its Fellows are undergoing while the present situation continues and although we have urged that welfare organizations meet this charge through federal funds, as they meet the cost of other necessities of life our efforts which seemed about to be realized in Federal Regulation 7 were doomed to failure.

What is Massachusetts doing and what are the activities of the Massachusetts Medical Society in studying sickness insurance? Proposed legislative action has appeared here sporadically since 1916 but has not yet aroused public interest to any marked degree. The last and most voluminous bill for the establishment of laws governing health insurance was introduced this winter but it was merged in another bill on which no action has yet been taken. Indubitably the movement toward governmental control through various forms of social insurance has been gathering momentum, the economic program has developed into a whirlwind of innovations but it is not likely that the medical profession in Massachusetts will be swept precipitately into any radical change though it has begun to gird up its loins and prepare to meet such measures as it knows to be fundamentally unsound and unwise.

In order to study the adequacy of medical care in Massachusetts our Committee on Public Relations has sent out a questionnaire to each Fellow of the Society and at this time slightly over one thousand answers have been received. While they convey some idea of the relation of the physician to his patients the questionnaire naturally does not bring out the attitude of the patient toward the physician. It has been suggested by Dr. H. L. Lombard that school teachers might be employed during the summer to

interview the residents of certain areas and thus we might obtain further data from a cross section of the state

The Public Relations Committee has had an enlarged program this year and by its greatly increased activity, has gained power and influence both within and outside of the Society, but I feel strongly that more intensive work on the matter of social insurance should be undertaken immediately, that a method should be found for an interpretation of the many forms in which this question of outstanding importance is being advocated, and that its implications and its effects should be plainly set forth, for there are still many Fellows in every part of the state who have not yet awakened to its possibilities and its probabilities. If we are to have unified action, every one must have accurate and simplified information from an authoritative source. A necessary factor in speeding up this process is the prompt cooperation of all district societies through their subcommittees.

In addition to what is being done by the Public Relations Committee some informal surveys of general conditions have been made in order to secure further data on which to base discussion when subsequent legislation is proposed, as unquestionably it will be, these surveys have revealed that most of the doctors have as much work as ever but receive much less for it than formerly. In some rural districts, the continued care of patients who have lost their jobs or their incomes has meant the impossibility of collecting any fee and we know of excellent physicians who as a result are facing a financial stringency almost as acute as that of those they have treated.

In all plans for collective methods of giving medical care to the self-respecting low-wage earner through group practice pay clinics or health insurance with or without governmental control we must remember that the physician is the key to the situation and there is no doubt that he should lead in devising and developing the proper procedure for a better distribution of medical care and its accompanying costs.

Let us hope that physicians throughout the United States will see their responsibilities for leadership in their own sphere and not delay until their fellow-citizens force them through undesirable legislation into methods of practice which are alien not only to their canons but subversive of what they believe to be the greatest good to the greatest number. This procedure must not have recourse to special pleading nor be charged with class consciousness but should be based on the soundest principles of public welfare and we should not limit ourselves merely to the financial and economic aspects but should also give thought to the danger of losing the finer type of young men who will no longer be drawn toward a career where they will be circumscribed, regimented and subjected to bureaucratic control, and to

the danger of losing that invaluable relationship between physician and patient that often transcends in importance the care and cure of the purely physical ailment.

It is conceivable that some type of sickness insurance may be evolved from which advantage will accrue to doctors and to the dependent sick, but the safeguarding of the interests of both will require a most exhaustive study which should be undertaken only by those properly equipped to weigh and pass judgment on every measure proposed.

Some twenty-five years ago I suggested to a group of Boston doctors the advisability of the establishment by county medical societies of their own collection agencies, the use of which would have been entirely optional by its members, it would have made possible the keeping of financial records of patients in each community, the handling of unpaid accounts through the medical organizations, and the maintenance of a clearing house where the names of non-paying patients would be recorded. The proposition met with no support as it was felt that medical societies were exclusively educational and should be kept free from business involvements. The question is now forced upon us whether by adhering to the original purpose we can deal successfully with the economic conditions that are every man's concern, and whether we can continue to consider the word "educational" as applicable only to matters professional. In the South and Southwest, county medical societies are operating business agencies, but as far as I know the idea has not taken root anywhere in the North and East, personally I believe the county medical societies have a function to perform in this line, but even more do I believe that if they would assume the responsibility of making fee tables for the low-wage-earning groups in their particular areas and would have at their headquarters advisers in the management of such business problems as are involved in everyday practice, we would be taking steps to forestall commercial and political control and would be in a better position to combat the encroachments of autocratic legislation. A number of plans have been formulated and are available through the American Medical Association for any society which is considering the introduction of such a scheme, and these can of course be adapted to the needs and desires of any community—that there would be a period of trial and error should not be a deterrent. A mild example of the manner in which the layman could get for himself what the inertia of physicians failed to furnish was shown in the establishment of the Life Extension Institute. Formed by laymen for the routine and systematic examination of subscribers at a fixed rate as a preventive against the onset of disease, it enabled them to secure something which many physicians could not be induced to give their regular clientele, though a corps of repu-

table medical men was readily obtainable for salaried services. When our profession heard of the Institute's success, and really saw the public need which it filled a wave of resentment broke over our ranks and efforts were made by some of the established medical organizations to loosen its grip. It really did the profession little if any harm and it should have aroused us to a growing need. Great as has always been my admiration for our profession and much as my respect for it has deepened during this term of office the former attitude toward the Life Extension Institute indicated that some of us were acting as though we were inclosed within a walled city and that we had been unwarrantably attacked, instead of realizing that it was ourselves who had failed in taking a wise initiative and in recognizing that we must now follow where we should have led. The practitioner still has it in his power to do more than care for the cases of illness which occur in his practice. He can send for his patients at stated intervals to make physical examinations and he can offer pertinent suggestions about the physical findings. He can follow up cases of infection to discover the onset of sequelae upon the circulatory and other organs. He can inquire into the activities of his middle-aged and elderly patients and guide them in the selection of their sports and foods. All of these ministrations give satisfaction to the patient and to the physician far in excess of the caring for the hopeless end results of certain illnesses and in disorders. Vaccine immunology as well as therapy offers many opportunities for the physician to practise protective medicine. It is my belief and experience that people like this protective attitude on the part of their regular medical attendants, we have certain well tested methods which it is advisable and desirable that people understand and accept, but they cannot understand them, nor are they ready to accept them unless they are explained by those who because of their training and their status in the community are in a position to give information that is of vital significance. Charlatans use every specious way of acquainting the public with their panaceas or their theories, employing means which to us are as unethical as they are obnoxious, and we are so repelled by their blatancy that we are often silent when we should speak. This winter when the bill for the special registration of Chiropractors was being heard before a legislative committee one of the representatives said that he could not feel that the medical profession was deeply interested because his own physician who was also a close friend had never taken the trouble even to mention the subject. The representative would have welcomed a clear explanation of the matter and could have come to the hearing with useful information from one whom he respected, instead of assuming general apathy on the part of the doctors of the state.

A digression at this point, which may not be wholly irrelevant, leads to a re-emphasis of what seems to be in constant need of repetition. The average physician is a strong individualist who has developed to a high degree a sense of service. He is interested in disease, in its course, its treatment, its prognosis and its etiology but not sufficiently even yet in its prevention, and that means a limitation of the scope of his service, for which there is little excuse. Teachers in medical schools agree that one of the most difficult tasks is to interest the undergraduates in preventive medicine. The student is so preoccupied with the picture of disease, its various physical signs and their interrelations, the drug, the serum, the extract, the vaccine, the surgical therapy, and the probable outcome that the less dramatic but equally important matter of what might have been done to avert the disease fails to engage his attention as seriously as it should. So, often the doctor is much more concerned about what to do for a case that is before his eyes than in how the condition might have been prevented. He responds promptly to the call of sickness and devotedly carries out the successive steps in its management and then when the results have been achieved he disappears feeling that his duty has been accomplished. But both prevention and follow up are possible if a relationship of confidence and understanding has been established.

To return to the work of the Massachusetts Medical Society. All the committees have done admirable work during the year, but as it is impossible in the allotted time to make even a brief résumé of their work, I commend their reports to your notice for careful reading.

The Committee on State and National Legislation has given a full and excellent account of its activities during the last session of the General Court but I feel that further mention should be made of House Bill 756 which was sponsored by the Massachusetts Medical Society, and with the substance of which most of you are familiar. It asked for one change, viz., that medical schools in this and other states, whose graduates apply for the right to practise in this Commonwealth should have the approval of the Board of Registration. This met with opposition from the Legislative Committee on Education who argued that medical schools that had been granted charters under which they were entitled to confer degrees should not be subjected to investigation even though it was clearly demonstrated that their systems of education fell below modern accepted standards. There seemed to be a belief that we were trying to close certain substandard schools in this state notwithstanding the definite statement that our sole object was to improve the quality and raise the grade of medical education in order that all should reach the level of the Board's requirements. We also pointed out that there is a

steady progress in medical education with which all schools should keep pace and that which was satisfactory a few years ago may be insufficient or even obsolete now, and that the public must be assured that all physicians to whom the care of the sick is entrusted have received adequate training and preparation. The Legislative Committee showed us every consideration, but withheld full approval of our bill, however we made a sufficiently strong impression to be invited to a special hearing a few days later. Mr Estabrook (a house member) introduced an amendment to permit the Board of Registration to pass upon the qualifications of medical schools outside of Massachusetts whose graduates might apply for the right to practise here, but he refused to include the power of investigating or disapproving of chartered schools within the state. The majority present objected to this amendment but the Legislative Committee felt that it offered the only chance of reporting the bill favorably. In case the amended bill should fail our legislative agent introduced a substitute bill calling upon the Legislature to permit the formation of a special unpaid commission to study the problems of medical education in Massachusetts. Eventually this proposition proved acceptable and the first bill with the Estabrook amendment was merged in the bill for the appointment of the commission and now awaits the action of the Senate and the approval of the Governor. Our Commonwealth has one of the least creditable practice acts of any state in the Union but the Massachusetts Medical Society has taken on its shoulders the task of improving the act and intends to carry on its campaign for the achievement of higher standards. We remember that President Eliot as long ago as 1891 thought that there would be short shifts for incompetent practitioners if the sufferings inflicted on the poorer and less intelligent portions of the community, and the economic losses imposed on the whole community, could be brought home to American legislators, in spite of the inevitable interference with so-called private rights, let us hope his optimism will ultimately be justified.

It has been in my mind for some time that the appointment of a reference committee in the Council would be of as distinct advantage to our Society as it has proved to be to many other large societies. My chief reason for urging this is that occasionally an important resolution is proposed, the purport of which is perfectly clear to the group which has had it under consideration and who expedite action upon it without time having been given for its full understanding by every member of the Council. If it should not be your pleasure to create a reference committee it should be the rule that all measures be referred to the particular committee in whose

department the matter properly belongs, before being acted upon by the Council.

If to many of you this paper seems devoid of new ideas and of new information, its only excuse is the conviction that there may be some who will be stimulated to take a livelier interest in medical economics and in legislation affecting our profession, and who therefore will help to spread a better understanding of current events as they touch those points. It is only by precept upon precept, line upon line, here a little, there a little, that such education is accomplished. Most of the data have been culled from sources available to you all. "I have brought nothing but the thread that ties them together."

No words can express our gratitude for the efficiency, the tireless energy and the unflinching thoughtfulness of Dr Shedden and his colleagues on the Committee of Arrangements, every detail has been given careful and painstaking attention, and that has meant a whole year's work and a heavy draft on the time and strength of busy practitioners. If the ladies of our families have enjoyed the social program, the first credit goes to Dr Shedden for having realized the advantage of a Women's Committee in Boston, to it, too, we are deeply indebted for the many delightful events which we are not permitted to share but from which we were getting pleasure vicariously, it has added much to the success of our meeting that the amenities have had a larger place than ever before. Nor can I terminate my remarks without expressing my deep appreciation of the work of our Editor, Dr Bowers, who by raising to a high plane *The New England Journal of Medicine* has made it one of the great publications of the country. Personally I owe him much for his constant willingness to assist the President. Also, I am not unmindful of the importance of the plan to secure an all-time executive who will take over some of the details of the headquarters office and thus further the work of our Society—Dr Lee and his associates in the Committee on Publications have given much time and thought to this necessary adjunct.

In closing, may I thank you all again for the inestimable privileges that you have given me during these two years which have brought enlarged experience, a broadened outlook, and an increasing acquaintance among a group that I am sure cannot be surpassed anywhere. Nothing has been more gratifying than to see how the Society has grown to be a more vital factor in the lives of the doctors throughout the whole Commonwealth as its functions have developed and become more effective, and nothing could have been more cordially cooperative than the response to calls for service and study. May the Massachusetts Medical Society go on to finer and better things in the coming year and become a stronger force under its new leadership.

PORADENOLYMPHITIS*

BY LEWIS A. GIFFIN, M.D.†

DIAGNOSTIC CRITERIA

IN 1933 H. S. Stannus (1933a) published a monograph entitled "A Sixth Venereal Disease" which established the fact that climatic bubo, lymphogranuloma inguinale, esthiomene, some cases of chronic ulcer and elephantiasis of the genito-ano rectal region and of inflammatory structure of the rectum are different manifestations of a single disease which he called "poradenolymphitis."

Frei (1925) found that the intradermal injection of small quantities of diluted sterile pus, aspirated from a fluctuant bubo after attenuation, or destroying the virus by heat will produce a dome shaped area of induration in persons who have, or have had the disease. The test is performed by injecting 0.1 cc. of a solution of the pus which has been diluted one to five or six times with physiological salt solution. Before use, this antigen is heated to 60°C. for two hours on one day and one hour on the following day and then tested for sterility. Failure to obtain a reaction in a clinically characteristic case may be due (1) to the use of an inactive antigen (2) the phenomenon of anergy in the presence of another disease (e.g. active tuberculosis and syphilis), (3) rarely to anergy alone, or (4) sometimes the patient does not develop the power to respond to an active antigen until the disease has reached a certain stage in its evolution such as occurred in cases reviewed by Stannus (1933a) where the reaction was negative until the peradenitis had involved the overlying skin. The reaction should be read on the third day. False positives are due to the early or inaccurate reading of the reaction, or to the presence in the antigen of extraneous matter due to faulty technique in preparation.

Stannus (1933a, page 60) says, "The histological features have been considered by many to be pathognomonic, but others believe that they cannot always be differentiated from tuberculosis. If not pathognomonic they are certainly very characteristic." The virus of poradenitis has an "exquisite predilection for lymphatic tissues", and always calls forth in them a specific and characteristic reaction, even in the tissues of experimental animals. The most characteristic single feature is seen in every clinical stage of the disease from the original adenitis to the pudendal elephantiasis, and even in the rectal stricture. This consists of little

foci somewhat resembling tubercles. These foci are composed of young granulation tissue which is surrounded by a wall of lymphocytes and in the periphery are seen epithelioid formations and giant cells (See also Stannus 1933b, page 423).

The clinical evidence alone is not sufficient to make a positive diagnosis except perhaps in the case of genital elephantiasis associated with anorectal lesions, the so-called "genito-ano-rectal syndrome" which, in the opinion of Stannus (1933a page 185) is "unmistakable" in all its parts essentially a manifestation of an infection with the virus of lymphogranuloma inguinale. As to the other manifestations of the disease, a subacute inguinal adenitis without other demonstrable cause should always give rise to suspicion. When associated with the typical genital lesion the suspicion is better grounded especially if there be a history of suspect coitus two to three weeks before. Stannus believes that inflammatory stricture of the rectum is a common manifestation of the disease, but quotes numerous investigators who say that gonorrheal, tuberculous or syphilitic proctitis may produce a lesion which is clinically similar. Moreover, Stannus (1933a) has pointed out that poradenolymphitis is frequently associated with other venereal diseases to which its manifestations may be attributed erroneously.

Probably the first cases of poradenolymphitis reported in the United States were those described by Hansmann (1924) from the Peter Bent Brigham Hospital under the title "Non-Tuberculous Granulomatous Lymphadenitis."

REPORT OF CASES

Our attention was called to the condition by seeing the following typical case:

CASE 1 D. C. No. 770499 A thirty-two year old Negroess entered the Fourth Medical Service of the Boston City Hospital on December 16, 1934 with the symptoms and findings of pyelitis which cleared up subsequently under treatment.

The patient had been born in Alabama and had come to Boston at the age of nineteen. At the age of sixteen she had a vaginal discharge and some lower abdominal pain, but has forgotten the details. The inguinal glands were never noticeably swollen. At seventeen or eighteen the patient began to be constipated progressively. Recently she has been able only to have thin watery movements and she has had to take laxatives twice a week for the past fourteen years. Occasionally she has had blood-streaked stools but they have never been tarry. There has been no recent loss of weight.

Physical examination elicited a soft systolic murmur at the cardiac apex, pain on deep palpation in the left costovertebral angle and there were a few pea-sized glands palpable in both groins. Rectal examination revealed a smooth constriction of the

From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard) Boston City Hospital, the Department of Tropical Medicine, Harvard Medical School, Boston, and the Service for Tropical Diseases, Boston City Hospital.
†Giffin, Lewis A.—Appointed Intern, July 1933, 1937, Bellevue Hospital, Second Medical Division, New York City. For record and address of author see "This Week's Issue" page 121.

while an additional 25 per cent (4) are greatly improved, and 2 or 3 per cent show slight improvement

COMMENT

Acne is essentially a disease of adolescence^{1,2,3}, that period of life during which maturation of the reproductive system is being accomplished and bodily growth normally reaches completion. These processes predicate the effective establishment of new endocrine interrelationships in the body. Although maturation and growth are usually simultaneously completed early in the third decade, it must be borne in mind that the age and size of an individual are no proof of maturity, and the fact that acne sometimes does occur at an age when maturity is, as a rule, complete, does not argue against the theory that it is related to adolescence, and to the endocrine imbalances which are so common during that age.

There is no lack of evidence that the integument is affected by various hormones. The changes in the quality of the skin and hair in hypothyroidism and hyperthyroidism and the typical pigmentation of Addison's disease are cases in point. And the appearance of growths of hair on the body, and in the male, on the face, as definitive evidence of adolescence indicates a relationship between the skin and the new endocrine activity which underlies that developmental period. To quote from Bloch³: "Acne is to be considered as a hormonal skin disease, which is certainly conditioned by the endocrine glands." He believes that "in its first phase it is a consequence of the function of the sexual glands, that in acne the normal physiological action of a ductless gland, the

sexual gland, on the skin leads through transition stages to a final effect which is pathological, a real disease of the true skin, namely acne.

It is, we believe, open to question whether activity of the sex glands which causes acne can strictly be called normal. It seems quite as likely that the sex glands of patients with acne may be as yet too immature to function physiologically. On that basis, the beneficial effect of pregnancy urine extract would depend upon its maturing influence upon the gonads and their internal secretion.

CONCLUSIONS

1 In fifteen patients with acne, treatment with Antutrin S has given results sufficiently satisfactory to warrant further study.

2 No definite conclusions can be drawn from so small a series of observations, but our observations and the natural history of acne, suggest that its cause lies in an endocrine imbalance incident with adolescence, consisting possibly a quantitative or qualitative abnormality of newly activated gonadal hormones.

3 More complete study of the question is essential to a solution of the problem. We are carrying on such a study, the results of which will be reported when a convincing amount of material is complete.

REFERENCES

1. Sutton, Richard L. Diseases of the Skin 8th Edition. St. Louis: The C. V. Mosby Company, 1928.
2. Ormsby, Oliver S. Infectious Diseases of the Skin. Edition. Philadelphia: Lea & Febiger, 1926.
3. Bloch, Bruno. Metabolism endocrine glands and skin diseases with special reference to acne vulgaris and xanthoma. Brit. J. Dermat. & Syph. 43: 61, 1931.
4. Murphy, D. P., Shoemaker, R. and Rea, M. Menstrual response to luteinizing extract of pregnancy urine. Endocrinology 18: 203, 1934.

BROMIDE INTOXICATION*

BY T. S. CLAIBORNE, M.D.†

THE frequent use of bromide in medical practice makes it necessary to keep the syndrome of bromide poisoning in mind. Acneiform eruption and mental lethargy are the usually accepted evidences of overdosage of bromide and it is probably not generally appreciated that severe symptoms may be associated with it. Attention has recently been called by Craven¹, Sharpe², and others to the bizarre clinical picture of bromide intoxication simulating serious organic disease. Gross tremor, weakness, ataxia, blurred speech, mental dullness, fixed facies, hallucinations, and delusions are seen in this condition. These cases are frequent in psychiatric hospitals and are more often diagnosed there, partially because of the routine or the available use of the diagnostic test, blood bro-

mide determination. In general hospitals, occur occasionally, probably more frequently than they are diagnosed. A report of a case which has recently come under observation at the Clinic illustrates the condition.

The history is often of little value in the diagnosis of bromide intoxication because of the confused mental state of the patient and also lack of suspicion of this condition on the part of the physician. Bromide intoxication must, however, be considered in any differential diagnosis before a diagnosis of brain tumor, "organic psychosis" or other more serious neurological conditions is made. The presence of a bromide rash is helpful but it is rather the unusual than the usual finding. Often the rash consists of only a few papulopustular lesions over the upper back. When bromide intoxication is present bromide is excreted by the kidneys and its presence in the urine is easily demonstrated by

*The Lahey Clinic, Boston, Mass.
†Claiborne, T. S.—Associate in Medicine, Lahey Clinic, Boston.
For record and address of author see "This Week's Issue" page 1222.

PORADENOLYMPHITIS*

BY LEWIS A. GIFFIN, M.D.†

DIAGNOSTIC CRITERIA

In 1933 H. S. Stannus (1933a) published a monograph entitled "A Sixth Venereal Disease" which established the fact that climatic bubo lymphogranuloma inguinale, esthiomene, some cases of chronic ulcer and elephantiasis of the genito-ano-rectal region, and of inflammatory stricture of the rectum are different manifestations of a single disease which he called "poradenolymphitis."

Frei (1925) found that the intradermal injection of small quantities of diluted, sterile pus, aspirated from a fluctuant bubo, after attenuating or destroying the virus by heat, will produce a dome-shaped area of induration in persons who have or have had the disease. The test is performed by injecting 0.1 cc. of a solution of the pus which has been diluted one to five or six times with physiological salt solution. Before use this antigen is heated to 60°C for two hours, on one day, and one hour on the following day, and then tested for sterility. Failure to obtain a reaction in a clinically characteristic case may be due (1) to the use of an inactive antigen, (2) the phenomenon of anergy in the presence of another disease (e.g., active tuberculosis and syphilis), (3) rarely to anergy alone, or, (4) sometimes the patient does not develop the power to respond to an active antigen until the disease has reached a certain stage in its evolution such as occurred in cases reviewed by Stannus (1933a) where the reaction was negative until the periadenitis had involved the overlying skin. The reaction should be read on the third day. False positives are due to the early or inaccurate reading of the reaction or to the presence in the antigen of extraneous matter due to faulty technique in preparation.

Stannus (1933a, page 60) says "The histological features have been considered by many to be pathognomonic, but others believe that they cannot always be differentiated from tuberculosis. If not pathognomonic they are certainly very characteristic." The virus of poradenitis has an "exquisite predilection for lymphatic tissues", and always calls forth in them a specific and characteristic reaction, even in the tissues of experimental animals. The most characteristic single feature is seen in every clinical stage of the disease from the original adenitis to the pudendal elephantiasis, and even in the rectal stricture. This consists of little

foci somewhat resembling tubercles. These foci are composed of young granulation tissue which is surrounded by a wall of lymphocytes and in the periphery are seen epithelioid formations and giant cells (See also Stannus 1933b, page 425).

The clinical evidence alone is not sufficient to make a positive diagnosis except perhaps in the case of genital elephantiasis associated with anorectal lesions the so-called "genito-ano-rectal syndrome" which in the opinion of Stannus (1933a, page 185) is "unmistakable, truly in all its parts essentially a manifestation of an infection with the virus of lymphogranuloma inguinale." As to the other manifestations of the disease a subacute inguinal adenitis without other demonstrable cause should always give rise to suspicion. When associated with the typical genital lesion the suspicion is better grounded, especially if there be a history of suspect coitus two to three weeks before. Stannus believes that inflammatory stricture of the rectum is a common manifestation of the disease, but quotes numerous investigators who say that gonorrheal, tuberculous or syphilitic proctitis may produce a lesion which is clinically similar. Moreover, Stannus (1933a) has pointed out that poradenolymphitis is frequently associated with other venereal diseases to which its manifestations may be attributed erroneously.

Probably the first cases of poradenolymphitis reported in the United States were those described by Hansmann (1924) from the Peter Bent Brigham Hospital under the title "Non-Tuberculous Granulomatous Lymphadenitis."

REPORT OF CASES

Our attention was called to the condition by seeing the following typical case:

CASE 1. D. C., No. 770449. A thirty-two year old Negress entered the Fourth Medical Service of the Boston City Hospital on December 16, 1934 with the symptoms and findings of pyelitis, which cleared up subsequently under treatment.

The patient had been born in Alabama and had come to Boston at the age of nineteen. At the age of sixteen, she had a vaginal discharge and some lower abdominal pain but has forgotten the details. The inguinal glands were never noticeably swollen. At seventeen or eighteen the patient began to become progressively constipated. Recently she has been able only to have thin watery movements and she has had to take laxatives twice a week for the past fourteen years. Occasionally she has had blood-streaked stools but they have never been tarry. There has been no recent loss of weight.

Physical examination elicited a soft systolic murmur at the cardiac apex, pain on deep palpation in the left costovertebral angle and there were a few pea-sized glands palpable in both groins. Rectal examination revealed a smooth constriction of the

*From the Thorndike Memorial Laboratory, Second and Fourth Medical Services (Harvard) Boston City Hospital, the Department of Tropical Medicine, Harvard Medical School, Boston, and the Service for Tropical Diseases, Boston City Hospital.

†Giffin, Lewis A.—Appointed Intern, July 1933, 1937, Bellevue Hospital, Second Medical Division, New York City. For record and address of author see "This Week's Issue," page 1-3.

rectum, around which there was very little induration or fibrosis. The finger could not be inserted more than 2 to 4 cm beyond the anal opening.

The Kahn test was weakly positive on one occasion. Two subsequent Kahn tests were negative. The Hinton test was twice positive. One Frei test was reported positive with an antigen of questionable reliability. A subsequent Frei test with an antigen of proved reliability was positive.

On January 11, 1935, a manual dilatation and division of the rectal stricture was done under novocaine spinal anesthesia. The patient made an uneventful recovery and was discharged the following week.

It was then called to our attention that a case of rectal stricture at the Boston City Hospital had been classified a year previously by Dr W B Castle as due to poradenolymphitis. This case showed the following:

CASE 2 M D, No 687743 A twenty one year old unmarried Negress entered the Second Medical Service on October 23, 1932 complaining of symptoms consistent with pulmonary tuberculosis. This diagnosis was confirmed by physical signs, x ray of the chest, and the finding of tubercle bacilli in the sputum. Besides the lung condition, the patient had a fibrous ring just within the anal sphincter. Vaginal examination was negative. Proctoscopic examination showed a ring like constriction two centimeters in diameter. Above this, the intestinal wall was granular, irregular, and somewhat thickened, and the mucosa was gray and covered with mucus but not ulcerated. The Kahn test was negative and a vaginal smear was negative for specific venereal organisms. The Frei test was not performed because a reliable antigen could not be secured at that time. The rectal stricture was manually dilated on November 11, 1932 and again on November 21, 1932.

Records kindly made available by the Boston Dispensary showed that the patient had been treated in Baltimore two years previously by incision and drainage for bilateral inguinal adenitis. When seen six months later at the Boston Dispensary, she had a small sinus in the left groin from which thick, yellowish pus exuded. Hinton and Kahn tests were positive at that time but the Wassermann test was negative. Pus from the cervix was negative for venereal organisms.

During the following year, the patient was given intensive antitubercular treatment, but despite this she developed constipation and a rectal protrusion which itched, bled, and discharged pus during the latter ten months of this period. A "condyloma" was then excised. Two months ago the Boston Dispensary Rectal Clinic noted that digital examination showed an atresia within the internal sphincter hardly admitting one finger.

CASE 3 A W No 722739 A thirty six year old Negro entered the Fifth Surgical Service on October 23, 1932 complaining of bilateral swollen and tender inguinal glands of twelve days' duration. There had been suspect coitus three weeks before. There were no genital sores and no signs or symptoms of gonorrhea. The Kahn and Wassermann tests were positive. The glands were incised and drained and the patient discharged.

He reentered three days later. Both groins were still draining. The temperature was up to 102°. The patient was then treated on the Service for Tropical Diseases with intravenous injections of sodium antimony thioarsocollate. He received 20 cc

of a 0.5 per cent solution three times per week. Following the first injection, the patient had a marked chill and rise in temperature lasting three hours. After ten days, the temperature and pulse were normal, the discharge had practically ceased, the glands were not tender, and the patient walked without pain.

This case was diagnosed as lymphogranuloma in guinea. Unfortunately, the Frei test was not performed and there was no biopsy.

DATA FROM HOSPITAL RECORDS

In an effort to arrive at the probable number of cases of poradenolymphitis that have been treated at the Boston City Hospital during the last ten years, a careful analysis was made of the records of cases admitted to the wards from January 1, 1925 to January 1, 1935.

Benign Rectal Stricture Twelve cases of this condition admitted during the period were consistent clinically with poradenolymphitis. The case which follows has been summarized as an example.

C R, No 565375 A white male sixty-five years old, admitted July 5, 1928, complained of constipation for three years. Records of previous admissions showed that he had had bilateral inguinal adenitis five years before and was treated with incision and drainage. One month later, he had a recurrent right inguinal bubo which was incised and drained. Fourteen months ago, there was a yellowish discharge near the rectum and fecal incontinence, and a fistulous tract was excised. At that time, a stricture was found about 2 cm above the internal sphincter. The stricture was dilated and a mass of soft tissue, which bled easily, was felt on the posterior wall of the rectum. Biopsy was reported "chronic inflammatory tissue".

Elephantiasis of the Genitals There were four cases of elephantiasis of the genitals, in two of which the legs were to some extent also involved. Two of these cases were consistent with and two suggestive of poradenolymphitis.

Inguinal Bubo Sixteen cases of inguinal bubo were associated with soft sores on the genitals which had been diagnosed as chancre but without demonstrating the bacillus of Dugrey. All of these cases were consistent clinically with poradenolymphitis.

Six other cases of inguinal buboes were associated with a urethral discharge in which the diagnosis was gonorrhea, but this diagnosis was not confirmed by demonstrating gonococci in the pus. These cases could have been poradenolymphitis either alone or combined with a Neisserian infection.

There were forty-three additional cases of inguinal adenitis or bubo in which, despite careful search, no evidence of venereal infection or of tuberculosis was found and there were no scratches, abrasions, or sores on the legs. In three of these cases, a culture of the pus from the bubo was sterile.

In the light of present knowledge, it seems very probable that most, if not all, of the cases

classified above would be diagnosed to-day as poradenolymphitis. Some of the data from the records regarding these cases are tabulated below.

tient Department during the same period. Further work on poradenolymphitis is in progress at the Boston City Hospital and will be reported upon later by others.

DATA FROM THE RECORDS OF THE BOSTON CITY HOSPITAL
JANUARY 1 1925 TO JANUARY 1 1935

Diagnosis Recorded	No of Cases	M	F	Colored	White	Clinical or Serological Leses	P H of G C	P H of Chan croid	Average Duration
(1) Benign rectal stricture	1*	5	7	4	8	3	3	0	3.3 yrs
(2) Elephantiasis of genitals, or genitals and extremities	4	3	1	2	2	1	0	0	1.2 yrs
(3) Inguinal buboes with genital soft sores without demonstrating B. of Dugrey	16	14	0	2	14	4	4	0	6 wks
(4) Inguinal buboes with urethral pus but gonococci not reported	6	6	0	1	5	1	3	0	4 wks
(5) Inguinal buboes or adenitis not explained	43	31	1*	4	39	8	1*	1	5.5 wks
Total cases	81	59	20	13	68	17	24	1	
Per cent of Total		70%	27%	17%	83%	21%	30%	1.2%	

PER CENT BY AGE-GROUPS OF CASES DIAGNOSED AS ABOVE

Groups	18-30 Yrs	31-40 Yrs	41-50 Yrs	51-60 Yrs	Over 60 Yrs
(1)	3 cases—25%	2 cases—17%	0	2 cases—17%	5 cases—42%
(2)	1 " 25%	1 " 9%	0	1 " 25%	1 " 25%
(3)	11 " 69%	3 " 19%	2 cases—12%	0	0
(4)	3 " 50%	2 " 33%	1 " 17%	0	0
(5)	16 " 37%	3 " 7%	8 " 19%	14 cases—37%	2 cases—5%
Total	34 42%	11 14%	11 14%	17 21%	8 9%

COMMENTS ON DATA

Cases recorded as "benign rectal stricture" occurred somewhat more frequently in females than in males, twice as often in white people as in Negroes, the majority occurred from the ages of eighteen to forty years, and the average duration was about three and one half years. The elephantiasis cases comprise too short a series to be of statistical value suffice it to say that three quarters occurred in males, and there was an equal number of white and colored patients.

Of the combined cases of inguinal buboes the great majority occurred in white male patients, an appreciable number had a previous venereal history, almost half occurred between the ages of eighteen and thirty years, and the average duration was five weeks. Of all cases totaled together three quarters occurred in males three quarters in whites, one quarter had had lues, one quarter had had gonorrhea, and slightly more than one half occurred below the age of forty years.

From the foregoing, it seems probable that there have been eighty-one cases of poradenolymphitis treated in the wards at the Boston City Hospital during the last ten years. It is possible that a larger group of ambulatory cases of this disease have been treated in the Out Pa-

LITERATURE

Stannus (1933a and 1934) reviews the reported incidence and geographical distribution in the United States up to and including the first half of the year 1934. Since that time the following cases have been reported.

From New York City Bloom (1933) described ten other cases in addition to the one with cervical adenitis mentioned by Stannus (1934). The same author (1934) reported another eight cases of rectal stricture, five in females and three in males confirmed by positive Frei reactions. Rostenberg (1934) presented a Frei positive case to a meeting of the Bronx Dermatological Society.

Cornilia and Stokes (1933 Philadelphia) reported a Frei positive case.

From New Haven Connecticut, comes a description of seven Frei positive cases reported by Howard and Strauss (1934). In the appended discussion M. S. Wien mentions two additional Frei positive cases in Chicago. W. S. Grant forty five Frei positive cases observed at the Provident Hospital in Chicago. F. B. Tauber a series of cases in Cincinnati treated with antigen cultured from Tyrode's medium, causing reduced skin sensitivity to the antigen. Later from New Haven Howard and Strauss reported

ten cases of the primary glandular symptom-complex one case of anal condylomata, and five of rectal stricture in females, all Frei-positive (Two or three of these cases overlap with those mentioned in their first article (1934), but are described in greater detail) Sweitzer (1934) in Minneapolis, presented a Frei-positive primary glandular case to the Minnesota Dermatological Society Connor (1934) presented four cases to the Cleveland Dermatological Society Three of these were Frei-positive The fourth was negative, a fact which was attributed to anergy in the presence of debility, as the case was characteristic

From Chicago, Streicher (1933) reported nineteen cases with positive Frei reaction Zeisler and Caro (1933) reported one case which was Frei-positive, and Thomas and McCarthy (1934) a similar case Wien and Perlstein (1934) reported another five cases of the genito-ano-rectal syndrome in Negroes, Frei-positive Lash (1934) reported a case of poradenolymphitis of the vulva coming on two or three years after a typical rectal stricture had been dilated, proved by characteristic biopsy findings and positive Frei test

In an addendum to their (1933) article, mentioned by Stannus (1933a), Tomlinson and Cameron reported two additional Frei-positive cases observed in Omaha, Nebraska

In San Antonio, Texas, Lehmann and Pipkin (1933) recorded seven cases with positive Frei tests and from Ft Smith, Arkansas, Goldstein and Byars (1934) described two cases showing positive Frei reactions

SUMMARY AND CONCLUSIONS

1 A brief résumé of Stannus's criteria for diagnosis of poradenolymphitis indicates that the clinical diagnosis should be supported by a positive Frei reaction performed with a reliable antigen or by characteristic histological findings

2 An analysis of the hospital records of ward cases over the last ten years, disclosed eight-one cases which may be classed clinically as poradenolymphitis with a high degree of probability

3 Of these cases, 75 per cent occurred in males, 75 per cent in white patients, 25 per cent had had lues, 25 per cent had had gonorrhea, and over 50 per cent occurred during the greatest period of sexual activity The average duration of the rectal strictures was three and one-half years, and of the inguinal buboes, five weeks

4 Cases reported in the United States since Stannus's recent review (1934) are briefly reviewed from the standpoint of incidence and geographical distribution The disease is still being recognized chiefly east of the Mississippi River and in the more densely populated areas

ACKNOWLEDGMENTS

I wish to acknowledge indebtedness to Dr George Cheever Shattuck, at whose suggestion this work was initiated and without whose constructive criticism this paper would not have been written

Thanks are offered to the Heads of the various Medical, Surgical, Gynecological and Skin Services at the Boston City Hospital, and to the Boston Dispensary, through whose courtesy the records were made available

I am indebted also to Dr T Scott of the Second Medical Service, Boston City Hospital, through whose courtesy antigen was supplied for the Frei tests, and to Dr R Williams of the Mallory Pathological Institute, Boston City Hospital, for reading the reactions

REFERENCES

- 1 Bloom D Arch Dermat & Syph 28 810 1933
Surg Gynec & Obst 58 827 1934
- 2 Connor W H Arch Dermat & Syph 29 748, 749 and 963 1934
- 3 Cornilia F and Stokes J H Arch Dermat. & Syph 27 1002 1933
- 4 Frei W Klin Wchnschr 4 2148 1925
- 5 Goldstein D W and Byars L T J Arkansas M. Soc 30 192 1934
- 6 Hansmann G H. Surg Gynec & Obst 39 72 1924
- 7 Howard M. E. and Strauss M J New Eng J Med 212 323 1935
- 8 Lash A F Am J Obst & Gynec 28 272, 1934
- 9 Lee H and Staley R W Ann Surg 100 486 1934
- 10 Lehmann C F and Pipkin J L Texas State J Med 29 192 1933
- 11 Rostenberg A Arch Dermat. & Syph 29 143 1934
- 12 Stannus H S A Sixth Venereal Disease Baltimore William Wood & Company 1933 (a)
Trop Dis Bull 30 423 1933 (b)
Trop Dis Bull 31 437 1934
- 13 Strauss M J and Howard M. E J A M A 103 1830 1934
- 14 Streicher M H Illinois M J 64 133 1933
- 15 Sweitzer S E Arch. Dermat & Syph 29 439 1934
- 16 Tamura J T J A M A 103 408 1934
- 17 Thomas W A and McCarthy E R J A M A. 102 766 1934
- 18 Tomlinson C C and Cameron O J Arch Dermat & Syph 27 778 1933
- 19 Wien M S and Perlstein M. O M Rec 139 288 1934
- 20 Zeisler E P and Caro M R Arch Dermat & Syph 27 856 1933

THE TREATMENT OF ACNE VULGARIS WITH
PREGNANCY URINE EXTRACT*

A Preliminary Report

BY CHARLES H. LAWRENCE, M.D.,† AND JACOB FEIGENBAUM, M.D.‡

DURING the past year, four young women who were being treated with Antutrin S for functional menorrhagia called to the attention of one of us (C. H. L.) the fact that the acne which each had had for several years had practically disappeared as menstruation became normal. Recently, one of them returned to the clinic for further treatment after an interval of three months. There had been a moderate increase in the duration and amount of the periods, and the acne had reappeared. Following the resumption of treatment the acne has again vanished.

These observations and the natural history of acne, seemed to us to justify further investigation of its treatment with pregnancy urine extract. For this purpose patients from the dermatological clinic were made available through the cooperation of Dr. F. M. Thurmon, to whom our thanks are accorded. The majority of them had severe acne, which had proved resistant to various forms of treatment previously employed. To date fifteen such patients have had sufficient treatment to justify certain tentative conclusions concerning its efficacy and significance. A brief summary of the essential facts concerning the patients and treatment is appended.

COMMENT

The material is too meager to furnish a basis for definite conclusions. It does furnish, however, certain interesting suggestions. The ages of the patients coincide with the accepted opinion concerning the age incidence of acne.^{1,2,3} The preponderance of females, although it does not agree with Bloch's⁴ figures, has no significance in so small a series. The types of acne encountered and its distribution merely serve to show that the material represents so far as it goes the 'run of the mine' in a dermatological clinic. Graduation of the severity of the process is based upon the number, size and character of the lesions, and though somewhat too elastic for a scientific standard, does furnish an important criterion of the effectiveness of treatment. The duration of each patient's disease is interesting for if subtracted from their pres-

ent age it emphasizes the fact that with three exceptions the lesions appeared between the eleventh and the fourteenth years, in other words, during the years when puberty normally occurs.

The laboratory studies show no significant departures from normal with the single exception of the glucose tolerance tests, which gave normal results in less than half the patients. No conclusions can be drawn, however, from so small a series except that in no instance thus far have we encountered convincing evidence of significant thyroid disturbance.

Treatment, as it has thus far been carried out, consisted in an initial dose of 1 cc. of Antutrin S (100 R U) to determine the individual reaction to the extract. As a rule, the dose was then increased to 2 cc. three times weekly. In only one patient was there enough reaction to make it inadvisable to give the larger dose. The treatment has been interrupted three or four days before each menstrual period in our patients and resumed two to four days after menstruation ceased. In no case has there been any demonstrable effect on normal menstruation. This observation agrees essentially with those of Murphy, Shoemaker and Rea⁵ upon the effect of Antutrin S in normal women.

In those patients who had acne and menorrhagia or metrorrhagia, the improvement in the acne paralleled the return of menstruation to normal. This association of effects suggests that the acne and the menstrual disturbance were, in these patients, both due to an identical hormonal imbalance.

Lack of cooperation from the patient prevented us from carrying out the treatment as scheduled in a few instances. The total amount of Antutrin S necessary to obtain results in a given patient varies considerably, a characteristic which we have encountered also in its use in cryptorchidism and menstrual disturbances.

Our results have been tabulated as good (8 patients), fair (4 patients), or slight (2 patients). Only when the acne has practically disappeared as an active process have we designated the result as good. A definite diminution in the number, size, and duration of the lesions was graded as a fair result, while the term slight improvement indicates that some effect was obtained but that exacerbations still occur. By these criteria it may be said that slightly more than half the patients (8) have been cured if the results prove permanent.

From the Medical Department of the New England Medical Center, Boston.

*We are indebted to Dr. E. A. Sharp of Parke Davis & Co. for the Antutrin S used in this study.

†Lawrence, Charles H.—Physician at the Medical Department and Chief of the Endocrine Clinic, Boston Dispensary. Feigenbaum, Jacob—Assistant Physician, Boston Dispensary. For records and addresses of authors see 'This Week's Issue' page 1222.

while an additional 25 per cent (4) are greatly improved, and 2 or 3 per cent show slight improvement

COMMENT

Acne is essentially a disease of adolescence^{1, 2, 3}, that period of life during which maturation of the reproductive system is being accomplished and bodily growth normally reaches completion. These processes predicate the effective establishment of new endocrine interrelationships in the body. Although maturation and growth are usually simultaneously completed early in the third decade, it must be borne in mind that the age and size of an individual are no proof of maturity, and the fact that acne sometimes does occur at an age when maturity is, as a rule, complete, does not argue against the theory that it is related to adolescence, and to the endocrine imbalances which are so common during that age.

There is no lack of evidence that the integument is affected by various hormones. The changes in the quality of the skin and hair in hypothyroidism and hyperthyroidism and the typical pigmentation of Addison's disease are cases in point. And the appearance of growths of hair on the body, and in the male, on the face, as definitive evidence of adolescence indicates a relationship between the skin and the new endocrine activity which underlies that developmental period. To quote from Bloch⁴ "Acne is to be considered as a hormonal skin disease, which is certainly conditioned by the endocrine glands." He believes that "in its first phase it is a consequence of the function of the sexual glands, that in acne the normal physiological action of a ductless gland, the

sexual gland, on the skin leads through transition stages to a final effect which is pathological, a real disease of the true skin, namely acne."

It is, we believe, open to question whether the activity of the sex glands which causes acne can strictly be called normal. It seems quite as likely that the sex glands of patients with acne may be as yet too immature to function physiologically. On that basis, the beneficial effect of pregnancy urine extract would depend upon its maturing influence upon the gonads and their internal secretion.

CONCLUSIONS

1 In fifteen patients with acne, treatment with Antutrin S has given results sufficiently satisfactory to warrant further study.

2 No definite conclusions can be drawn from so small a series of observations, but our observations and the natural history of acne, suggest that its cause lies in an endocrine imbalance coincident with adolescence, consisting possibly in a quantitative or qualitative abnormality of the newly activated gonadal hormones.

3 More complete study of the question is essential to a solution of the problem. We are carrying on such a study, the results of which will be reported when a convincing amount of material is complete.

REFERENCES

1. Sutton, Richard L. *Diseases of the Skin*. 5th Edition. St. Louis: The C. V. Mosby Company, 1928.
2. Ormsby, Oliver S. *Infectious Diseases of the Skin*. 4th Edition. Philadelphia: Lea & Febiger, 1926.
3. Bloch, Bruno. *Metabolism, endocrine glands and skin diseases with special reference to acne vulgaris and xanthoma*. *Brit J Dermat. & Syph* 43: 61, 1931.
4. Murphy, D. P., Shoemaker, R., and Rea, M. *Menstrual response to luteinizing extract of pregnancy urine*. *Endocrinology* 18: 203, 1934.

BROMIDE INTOXICATION*

BY T. S. CLAIBORNE, M.D.†

THE frequent use of bromide in medical practice makes it necessary to keep the syndrome of bromide poisoning in mind. Acneiform eruption and mental lethargy are the usually accepted evidences of overdosage of bromide and it is probably not generally appreciated that severe symptoms may be associated with it. Attention has recently been called by Craven¹, Sharpe², and others to the bizarre clinical picture of bromide intoxication simulating serious organic disease. Gross tremor, weakness, ataxia, blurred speech, mental dullness, fixed facies, hallucinations, and delusions are seen in this condition. These cases are frequent in psychiatric hospitals and are more often diagnosed there, partially because of the routine or the available use of the diagnostic test, blood bro-

mid determination. In general hospitals, cases occur occasionally, probably more frequently than they are diagnosed. A report of a case which has recently come under observation in the Clinic illustrates the condition.

The history is often of little value in the diagnosis of bromide intoxication because of the confused mental state of the patient and also lack of suspicion of this condition on the part of the physician. Bromide intoxication must, however, be considered in any differential diagnosis before a diagnosis of brain tumor, "organic" psychosis or other more serious neurological conditions is made. The presence of a bromide rash is helpful but it is rather the unusual than the usual finding. Often the rash consists of only a few papulopustular lesions over the upper back. When bromide intoxication is present, bromide is excreted by the kidneys and its presence in the urine is easily demonstrated by a

*The Lahey Clinic, Boston, Mass.

†Claiborne, T. S.—Associate in Medicine, Lahey Clinic, Boston. For record and address of author see *This Week's Issue* page 1232.

sign of dis-

Num ber of Treat ments	Units of Anti Strin S	Results	Remarks
4	3900	Good	
18	2400	Good	There is also hypopituitary element here
21	4200	Good	One of the best results obtained
11	2500	Slight improvement	Result here fluctuates good for a short time, then bad
17	3750	Good	One of the best results except for scarring
6	900	Good	
3	500	Slight improvement	Treatment insufficient.
9	1800	Fair	
7	1050	Fair	Irregular treatment
10	1800	Good	
6	1000	Good	Results would have been better with more regular treatment.
4	600	Fair	Not enough treatment to judge results
10	1900	Fair	
5	900	Good	Prompt response treatment continuing

ed of 25 cases

10 is in 4 cases

Rowle aged
Lahay Clinic
kness of nine
over a period
l of her hus
table mental
the gradual
pains in the
light or nine
gan to lose
is.

s in walking
and legs for
d noted that
Her speech
terrors For
elusions and
of unsteadl
l broken her

er emaciated
had a gross
y on a broad
ents of the
gnative. The
o knee jerks
was positive
done On a
The nose

while an additional 25 per cent (4) are greatly improved, and 2 or 3 per cent show slight improvement

COMMENT

Acne is essentially a disease of adolescence^{1,2,3}, that period of life during which maturation of the reproductive system is being accomplished and bodily growth normally reaches completion. These processes predicate the effective establishment of new endocrine interrelationships in the body. Although maturation and growth are usually simultaneously completed early in the third decade, it must be borne in mind that the age and size of an individual are no proof of maturity, and the fact that acne sometimes does occur at an age when maturity is, as a rule, complete, does not argue against the theory that it is related to adolescence, and to the endocrine imbalances which are so common during that age.

There is no lack of evidence that the integument is affected by various hormones. The changes in the quality of the skin and hair in hypothyroidism and hyperthyroidism and the typical pigmentation of Addison's disease are cases in point. And the appearance of growths of hair on the body, and in the male, on the face, as definitive evidence of adolescence indicates a relationship between the skin and the new endocrine activity which underlies that developmental period. To quote from Bloch³ "Acne is to be considered as a hormonal skin disease, which is certainly conditioned by the endocrine glands." He believes that "in its first phase it is a consequence of the function of the sexual glands, that in acne the normal physiological action of a ductless gland, the

sexual gland, on the skin leads through transition stages to a final effect which is pathological, a real disease of the true skin, namely acne.

It is, we believe, open to question whether the activity of the sex glands which causes acne can strictly be called normal. It seems quite as likely that the sex glands of patients with acne may be as yet too immature to function physiologically. On that basis, the beneficial effect of pregnancy urine extract would depend upon its maturing influence upon the gonads and their internal secretion.

CONCLUSIONS

1 In fifteen patients with acne, treatment with Antuitrin S has given results sufficient satisfactory to warrant further study.

2 No definite conclusions can be drawn from so small a series of observations, but our observations and the natural history of acne, suggest that its cause lies in an endocrine imbalance coincident with adolescence, consisting possibly of a quantitative or qualitative abnormality of the newly activated gonadal hormones.

3 More complete study of the question is essential to a solution of the problem. We are carrying on such a study, the results of which will be reported when a convincing amount of material is complete.

REFERENCES

1. Sutton, Richard L. Diseases of the Skin. 5th Edition. St. Louis. The C. V. Mosby Company. 1928.
2. Ormsby, Oliver S. Infectious Diseases of the Skin. 4th Edition. Philadelphia. Lea & Febiger. 1926.
3. Bloch, Bruno. Metabolism endocrine glands and skin diseases with special reference to acne vulgaris and xanthoma. Brit. J. Dermat. & Syph. 43: 61. 1931.
4. Murphy, D. P., Shoemaker, R. and Rea, M. Menstrual response to luteinizing extract of pregnancy urine. Endocrinology 18: 203. 1934.

BROMIDE INTOXICATION*

BY T. S. CLAIBORNE, M.D.†

THE frequent use of bromide in medical practice makes it necessary to keep the syndrome of bromide poisoning in mind. Acneiform eruption and mental lethargy are the usually accepted evidences of overdosage of bromide and it is probably not generally appreciated that severe symptoms may be associated with it. Attention has recently been called by Craven¹, Sharpe², and others to the bizarre clinical picture of bromide intoxication simulating serious organic disease. Gross tremor, weakness, ataxia, blurred speech, mental dullness, fixed facies, hallucinations and delusions are seen in this condition. These cases are frequent in psychiatric hospitals and are more often diagnosed there partially because of the routine or the available use of the diagnostic test, blood bromide

determination. In general hospitals, cases occur occasionally, probably more frequently than they are diagnosed. A report of a case which has recently come under observation in the Clinic illustrates the condition.

The history is often of little value in the diagnosis of bromide intoxication because of the confused mental state of the patient and also lack of suspicion of this condition on the part of the physician. Bromide intoxication must, however, be considered in any differential diagnosis before a diagnosis of brain tumor, "organic" psychosis or other more serious neurological conditions is made. The presence of a bromide rash is helpful but it is rather the unusual than the usual finding. Often the rash consists of only a few papulopustular lesions over the upper back. When bromide intoxication is present bromide is excreted by the kidneys and its presence in the urine is easily demonstrated by

*The Lahey Clinic Boston Mass.

†Claiborne, T. S.—Associate in Medicine, Lahey Clinic Boston. For record and address of author see "This Week's Issue" page 1232.

Number of Treatments	Units of Antulins	Results	Remarks
24	3950	Good	
18	2400	Good	There is also hypopharyngeal element here
21	4200	Good	One of the best results obtained
11	2500	Slight improvement	Result here in that a good for a short time, then had
17	3550	Good	One of the best results except for scarring
6	900	Good	
3	500	Slight improvement	Treatment insufficient.
9	1800	Fair	
7	1050	Fair	Irregular treatment
10	1800	Good	
6	1000	Good	Results would have been better with more regular treatment.
4	600	Fair	Not enough treatment to judge results
10	1900	Fair	
5	900	Good	Prompt response treatment continuing

d of 22 cases

Dose in 4 cases

unaware aged
Lahoy Clinic
weakness of nine
over a period
id of her hus
stable mental
f the gradual
d pains in the
eight or nine
egan to lose
ids

ss in walking
and legs for
ad noted that
Her speech
nervous For
delusions and
ie of unstead
d broken her

her emaciated
had a gross
dy of a broad

test* by Wuth*. It is also demonstrable in the blood. As a usual thing a blood bromide reading of over 200 mg for each 100 cc. is present when symptoms of intoxication are found. Yet a higher concentration of bromide in the blood is sometimes present before an otherwise healthy individual shows the symptoms of intoxication. One case reported in the literature with no clinical symptoms had a blood bromide content of 385 mg per each 100 cc.¹⁰ Normally there is no bromide in the blood. The general condition of the patient plays a considerable part in the patient's susceptibility to the intoxication with bromide. Patients who are elderly, those with kidney disease, edema of cardiac or renal origin and organic nervous or psychiatric disease seem to be more sensitive to bromide* than patients without those complications.

Response to treatment in the intoxication is almost always rapid and satisfactory. The treatment is simple. It consists merely of stopping the intake of bromide and aiding its output by the administration of sodium chloride and large amounts of fluid. The dosage of sodium chloride employed is about 10 grams daily. The condition usually clears up in one to four weeks. More observation may be necessary when improvement occurs to determine the psychic make up of the patient since an underlying mental disturbance for which bromide has been given will frequently be found. The presence of an organic neurological disease in addition to bromide intoxication must always also be considered.

In reviewing the cases of bromide intoxication in the literature subsequent to 1921, a tabulation of the variation in the first determination of the concentration of blood bromide was made, table 1, and also where it was mentioned of the duration of symptoms before the diagnosis was made table 2. The large group of cases in the first column of table 1 (75 to 150 mg for each 100 cc) is due primarily to cases having other disease, making them more susceptible to intoxication. In table 2 it will be seen that the duration of symptoms varies from two to three days up to one year, with the largest incidence in the period of two to four weeks. In fifteen cases in which the examination of the spinal fluid was reported, five showed abnormal findings and ten were entirely negative. In three cases, syphilis of the central nervous system was found. In the two remaining cases, there was an increase in total protein, one 90 mg and the other 80 mg. In the latter case a cell count showed ten lymphocytes. It would seem possible, therefore to have an elevated spinal fluid total protein in

bromide intoxication with no other sign of disease of the central nervous system.

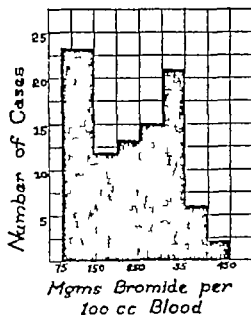


TABLE 1. Content of bromides in the blood of 82 cases with bromide intoxication.

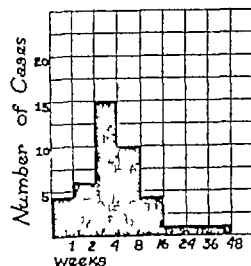


TABLE 2. Duration of symptom before diagnosis in 42 cases with bromide intoxication.

CASE REPORT

The patient was an American housewife aged forty years who was first seen in The Lahey Clinic on July 6, 1934. She complained of weakness of nine months duration and a mental upset over a period of two to three months. With the aid of her husband necessarily because of her unstable mental state this patient gave a history of the gradual onset of weakness, loss of appetite and pains in the legs. These symptoms began about eight or nine months before entry. She soon began to lose weight and had lost twenty-five pounds.

She had had increasing unsteadiness in walking and a gross tremor of the hands, arms and legs for two or three months. Her husband had noted that her face had become expressionless. Her speech was slow and slurred. She was very nervous. For three to four weeks she had had delusions and oral and visual hallucinations. Because of unsteadiness she had fallen recently and had broken her nose.

On examination the patient was rather emaciated and displayed masklike faces. She had a gross tremor of the hands. She walked slowly on a broad base and turned stiffly. The movements of the eyes were normal. The fundi were negative. The reflexes in the arms were active. The knee jerks were diminished. The Romberg test was positive. The finger to nose test was poorly done. On a Babinski test there was no response. The no a

* To 5 cc. of urine, add 1.0 Gm. of animal charcoal, mix well, allow to stand for a few minutes and filter. To 5 cc. of the filtrate add 1 cc. of 36 per cent trichloroacetic acid and 1 cc. of 0.5 per cent gold chloride solution. A brown shade denotes a positive reaction.

showed signs of recent injury The heart and lungs were negative The pulse was ninety to one hundred, blood pressure 114/90 The joints were negative The pulsations of the dorsal pedal arteries were normal Her weight was one hundred and five pounds, her height four feet ten and a half inches Examination of the blood showed the number of white blood cells, 6,450, the red blood cells, 4,700,000 and the hemoglobin 85 per cent The urine showed a slight trace of albumin, no sugar and the sediment was negative The stools were negative for blood. A lumbar puncture showed normal dynamics, negative Wassermann and negative Gold Sol, two lymphocytes and total protein of 90 mg for each 100 cc After five or six days in the hospital the patient was not much better She was still having delusions and hallucinations During this period she was given twenty grains of bromide on several occasions in an attempt to quiet her A diagnosis of Parkinsonian disease was seriously considered

Because of the presence of a psychosis, apparently not of an "organic" type and the physical signs of tremor, weakness and mask-like expression, a determination of blood bromide was made and found to be 300 mg for each 100 cc

She was then given sodium chloride, ten grams daily for eight days Three days after medication was begun she had no more delusions and hallucinations and became stronger and mentally clearer After eight days a determination of blood bromide was made again and the reading was 150 mg for each 100 cc During this period the patient began to have a few pustular lesions about the face and upper part of the body These seemed typical of bromide rash. As she cleared mentally she began to complain of pains in the legs and feet which had troubled her from the beginning Nothing could be found to explain these pains

When the patient became oriented and mentally clear, a different history was obtained It was found that the original complaint was pain in the feet and legs with some swelling and redness and for this she had been given a salty medicine The diagnosis of the original complaint is not clear The prescription which she was given was a combination of sodium bromide and potassium bromide She had had the prescription filled at least twelve times and had, during the past seven months, taken twelve bottles

Two weeks after discharge from the hospital, approximately three weeks after treatment was started, the patient was again seen in the Clinic The improvement was remarkable She appeared

like a different person She walked almost normally She smiled easily, she was mentally alert, and there was very little tremor The Romberg test was negative and the reflexes were normal Her weight was 107 pounds She said that she was greatly improved and that she felt better than she had at any time during the past twelve months All the pains in the feet and legs had disappeared At this time she did not wish lumbar puncture and so it was not urged Blood was taken for determination of bromide and the report was 75 mg for each 100 cc

SUMMARY

A case which illustrates the serious results of bromide intoxication is reported. The simulation of more serious organic disease by bromide poisoning is suggested Suspicion of the condition may be aroused by symptoms of weakness, tremor, memory defect, hallucinations and delusions

The diagnosis may be made by determining the blood bromide The possibility of bromide poisoning may be eliminated by demonstrating the absence of bromide in the urine Treatment consists of the elimination of bromide from the blood This is hastened by administration of sodium chloride Results are gratifying

REFERENCES

- 1 Hunt E L The deleterious effects of bromide treatment in the diseases of the nervous system *Med Rec* 100 103 (July) 1921
- 2 Wuth Otto Rational bromide therapy new methods for its control *J A M A* 88 2018 (June 25) 1927
- 3 Wagner C P and Bunbury D E Incidence of bromide intoxication among psychotic patients *J A M A* 95 1725 (Dec. 6) 1930
- 4 Diethalm Oscar Bromide intoxication. *J Nerv & Ment. Dis* 71 151 (Feb.) 278 (March) 1930
- 5 Doane J C and Weiner J G Bromide intoxication *M J & Rec.* 134 585 (Dec. 16) 1931
- 6 Sippe C H and Bostock J Some observations on bromide therapy and intoxication *M. J Australia* 1 85 (Jan 16) 1932
- 7 Walnwright C W Bromide intoxication *Internat Clin* 1 78 (March) 1933
- 8 Levin M. Bromide psychoses diagnosis treatment and prevention *Ann. Int. Med.* 7 709 (Dec.) 1933
- 9 Levin M. Bromide delirium and other bromide psychoses *Am J Psychiat* 12 1125 (May) 1933
- 10 Katzenbogen S Goldsmith H and White P L Bromide intoxication relation to content of bromide in blood and barrier permeability to bromide *Am J Psychiat* 13 637 (Nov.) 1933
- 11 Craven E B Jr Clinical picture of bromide poisoning *Am J M Sc* 186 525 (Oct.) 1933
- 12 Sharpe J C Bromide intoxication. *J A M A* 102 1462 (May 5) 1934

DOCTORS, HOSPITALS AND LEGISLATION*

BY INGERSOLL BOWDITCH, S B †

THE Faulkner Hospital, which you have honored tonight by holding this meeting here, was founded by Doctor and Mrs George Faulkner, long residents of Jamaica Plain, for the benefit of the people, and it was their wish that it be located somewhere in old Ward 23 Before Mrs Faulkner died, the original location was purchased by her and in 1903 a hospital of twenty-eight beds was opened for patients Since then, on account of the demand made

upon it by the doctors and the community, the bed capacity has been increased to 150 beds and nearly eight acres of land have been added to the original purchase I wish to bring to your attention as clearly as I can the fact that this hospital, as well as other hospitals of similar type, are for the benefit of the people in the community where they are placed and that any legislation which affects such hospitals affects also the people Members of the Legislature and of the City Council are representatives of the people and, therefore, should give careful thought and consideration to all proposed laws and ordinances before allowing them to become

*Read at a meeting of the West Roxbury Medical Association January 1935

†Bowditch Ingersoll—Treasurer of the Faulkner Hospital For record and address of author see This Week's Issue page 1232

operative, and make sure that they will not in any way handicap the hospitals and, consequently, the people whom they serve.

Another point I wish to make clear is that hospitals are supported directly and indirectly by the people. Some generously contribute money and time for the benefit of those who cannot pay the cost of unexpected sickness. Others, who are financially able and desire to occupy private rooms pay more than the actual cost of their care, thereby enabling the hospital to take care of those who are less fortunate. In any community, the people want to consider the hospital as their hospital just the same as they consider the church which they attend their church, and should exert every effort to protect it from every harm and handicap which may threaten it. I want you all to feel that although our hospital is called the Faulkner Hospital because it has to have a name to designate it from other similar institutions just as we all have names to distinguish us from our neighbors or other members of our family it is really our hospital and we should help it and through it our fellow beings, in every way possible.

I have used the pronoun "our" in the sense that I am a member of this community just as you are, and not as a Trustee of the Hospital.

There are a great many ways by which legislation can affect hospitals and the doctors connected with them. Every cent lost or paid out through taxation is a cent that cannot be used for the benefit of patients. Originally when the United States Government levied a tax on dividends those received by hospitals were taxed, thereby reducing the income. Through the combined efforts of hospital trustees, the law was changed to exempt from taxation the dividends paid directly to the hospital treasury and all former deductions were refunded. It was impossible to rectify one mistake the taxation of dividends of a trust fund the income of which was used for the benefit of a hospital. I do not know how much this tax reduced the income of the Faulkner Hospital by reducing the income from the Chickering Trust, but I am sure that this community would have been benefited if the full amount of the dividends had been received. Miss Caroline E. Chickering by her will appointed the Boston Safe Deposit and Trust Company Trustee of a fund three-fifths of the net income to be paid to the Faulkner Hospital and two-fifths to the Massachusetts General Hospital. It did not seem reasonable to tax dividends which came to a hospital through a trustee when dividends paid direct were not taxed. This is the sort of legislation which should be carefully analyzed.

Another source of expense to a hospital is the check tax. Although it amounts to only two cents a check, when the number of checks drawn

by this hospital is figured the sum paid in taxes during the year is considerable. The Faulkner Hospital's bank account was analyzed for the month of October to determine the amount of service charge to be made under the new rules of the Clearing House. Although the average daily balance was nearly ten thousand dollars, the large number of checks drawn and the many items of deposits caused a loss in bookkeeping to the bank as figured by the Clearing House rule. As you all undoubtedly know, the banks are not always correct in figuring the check tax. Individuals can accept the bank's figures without checking them, but a hospital bookkeeper ought to be sure that the amount of tax deducted is correct. It takes time to find this out. I hope that Congress will not spend its time thinking up a new tax law to take the place of this one which has just expired.

Another source of expense to a hospital is the processing tax. The tax itself does not amount to much but the labor to ascertain the amount to be remitted takes a lot of time and causes extra work for the office force, who have all they can do to keep the regular accounts of the hospital. The modern hospital accounting system has many details. It is necessary for the Superintendent to keep a very close watch on the receipts and expenses in order to see if any savings can be made for the benefit of the community, and any laws which call for extra work on the part of the bookkeepers should not be passed without a great deal of consideration. Hospitals keep their working staff as small as possible consistent with the work to be accomplished.

Charitable institutions in Massachusetts are now exempt from taxation. The only tax they pay is on real estate held as an investment. This is not true in other states and in the past years it has been suggested that new sources of revenue for Massachusetts might be obtained by taxing charitable corporations. So far the representatives of the people have considered their wishes but in these times no one can tell what may happen. I understand that in the last few years most hospitals in and around Boston have not been able to earn their running expenses and if depreciation and other reserves had been set up as is done by commercial corporations every hospital would have ended its year with a deficit. If taxes were added to the present expense of running a hospital, I am afraid that many cities and towns would hold tax titles on or might even own hospitals which they could not afford to run and which would be very difficult to dispose of.

These cities and towns of Massachusetts receive great benefit from charitable institutions, which more than offsets any taxes which might be collected. I think that I am right in saying that in some cities in Massachusetts those who

cannot pay for sickness must be taken care of by public institutions. This means that the people, through taxation, must pay for the cost of sickness of those who have no money to pay this cost. In 1934 the Faulkner Hospital gave over \$41,000 worth of treatment to those who could not pay for it. It receives no payment from any city or town for this free treatment. If this treatment had not been given, the patients would have had to be taken to public hospitals supported by taxation and often so crowded that it is impossible for patients to receive as satisfactory care as they receive at our hospital.

The rates which are charged to patients in hospitals such as the Faulkner are based on the cost of care and, to a certain extent, on the ability of the patient to pay them. If the overhead is reduced the rates can be less, and the community gets the benefit. In these days it is very difficult to raise an endowment, the income from which would pay the cost of hospital care, thereby reducing the rates charged to the patients, and if donations for current expenses could be easily obtained the need of an Emergency Campaign would not exist. The only way a hospital can serve a community as it should be served is by keeping its expenses less than its income.

Laws concerning the supervision of hospitals should be carefully made. I am well aware that if there were no laws concerning the conduct of hospitals great dangers to the community would exist. Perhaps the members of legislatures and of city governments do not realize the safeguards the hospitals themselves and the doctors connected with them have set up for the protection of the general public.

Last October the American College of Surgeons held its annual meeting in Boston, and the Faulkner Hospital took part. This association of surgeons has had a great deal to do with the establishment of the high standards set by hospitals all over the United States and Canada. It is the aim of all well-conducted hospitals to receive an approved rating from this association. To receive this rating many conditions have to be met, and any patient going to an approved hospital can be assured of good scientific treatment from those connected with it.

A hospital where students may continue their education has to receive the approval of the American Medical Association and also has to have the good will of those connected with the first class medical schools. No ambitious graduate student will want to take the position of intern in a hospital where the staff doctors are not held high in their profession and where the equipment and nursing service are not up to standard.

In order that graduate nurses may register and hold positions in the different states, the schools of hospitals have to comply

with the standards for registration set by the public authorities of those states. All first class hospitals want the best material they can obtain for pupil nurses and, therefore, must offer the highest type of education to attract this material. In considering laws to govern the conduct of hospitals, due consideration should be given to the standards set by the leading societies I have mentioned. Their officers might be consulted with the result that the states and the societies may work together to a common end. Without such cooperation it might be possible that the laws of a state would prevent a hospital from receiving the approval of the American College of Surgeons. This would put it in a very undesirable position with its fellow members of the American Hospital Association.

I hope I have made it clear that no law should be passed which will handicap a hospital trying to live up to the highest standard. Such hospitals will, undoubtedly, encourage other hospitals to rise to a higher level more rapidly than any newly enacted law.

For the past two or three years we have heard a great deal of discussion about minimum wages and the number of hours people can work. The United States Government tried to formulate a code for hospital service, but it was an impossible undertaking. No one knows the exact minute when babies are to arrive or when an emergency operation must be performed. Therefore, hospitals must be ready every minute in the twenty-four hours of the day to receive and take care of patients. They have to be on the same basis as the fire department, but it would be financially, and from a practical point of view, impossible to have eight-hour shifts in every position. Every one in this community expects the doctors to be on call day and night. What would they think, when they wanted the family doctor to attend their baby who had a severe attack of croup, if they were told that he had worked that day the number of hours the law permitted and could not see the baby until the next day? Many attempts will be made in the next few years to legalize the amount of labor a person may do in a day, and when this subject is considered, charitable institutions must receive due consideration. The worries of the Superintendent should not be increased.

Up to this point I have been speaking about the effects of legislation in a general way. I want now to call your attention to a piece of legislation which ought to be improved for the benefit of hospitals and doctors. This is the compulsory automobile liability insurance law. As I interpret this law, it was passed so that those who were injured through the carelessness of a driver might be compensated for their medical expenses and loss of earning power by the company in which the driver was insured. Let us see how this works out in an actual case.

A laboring man, with a family to support, is run over by an automobile and receives a fracture of the skull and internal injuries. He is rushed to a hospital and has to be operated upon immediately to save his life. There is no time for the admitting officer to find out whether the injured man is able to pay for the operation and after-care. It is the patient to whom the hospital and doctor must look for the payment of their bills, not the insurance company or the driver. It would not be proper to refuse to operate until the officer found out who was to be responsible for these payments. After the operation is performed it is learned that the patient has no money to pay his bills and the hospital and the surgeon will have to wait until the insurance company settles with him. Unless the evidence as to the responsibility of the driver is indisputable the insurance company, when the damages are severe, will raise the question of contributory negligence on the part of the injured man and will offer a very small amount to settle the claim. In a great many cases this settlement is refused and the insurance company makes no further effort until a suit is brought against the insured and it is actually put down for trial. As you all know the courts are several years behind in their work and the insurance companies do not make much effort to bring their cases to trial. As I said before, the hospital and doctors look to the patient for the payment of their bills and when a demand is made the answer is, 'I shall pay it when the insurance company settles.' This means that the hospital and doctors have to wait two or three years before the bills are paid, if the patient is honest. If he is not honest the care of the patient is a dead loss to both. It is human nature for a poor man with a family, when the settlement has been made with the insurance company two or three years after he has left the hospital to think that the hospital having waited so long for its money can wait still longer and therefore, he can use the money for the benefit of the family.

The State of New Jersey and, I believe, one or two other states have a law allowing a hospital to register a claim with the City or County Clerk, or some other public official, against a patient who was injured in an automobile accident. Before the insurance company can settle this claim which has been thus registered, the hospital has to be satisfied. The Faulkner Hospital has lost a great deal of money on account of its inability to collect from patients who have

been injured by automobiles, have been discharged and have no financial resources. Doctors have, undoubtedly, lost more. I am in no position to suggest the form of a law to be passed to correct this hardship to hospitals and doctors. The aim of it, however, should be to prevent a settlement by the insurance company until both hospital and doctor have been paid for services rendered.

Another question to be considered is whether automobilists should be compelled to take out insurance which will pay for their hospital care resulting from accidents in which they alone are involved. In order to make my point clear, I shall assume that a car has skidded on Centro Street and knocked down a lamp post. The driver has been badly cut by glass and has been taken to the hospital to have his wounds dressed. He is entered as an out patient and is treated by one of the staff doctors. The hospital furnishes operating room supplies as well as the time of its nurses and interns. A bill for a moderate amount is presented, and the patient promises to send a check the next day in settlement but often no check is received. Sometimes false names and addresses are given so that the patient cannot be traced. As Treasurer of this hospital I have learned a great deal about human nature. Frequently the bills are of too small an amount to warrant the spending of money to bring suit to collect them. Their total, however is appreciable. Perhaps it might help if a hospital be permitted to retain the driver's license until his obligations are paid.

In order that first-class hospitals may be able to carry on their work to the best advantage of the community which they serve, the laws to which they are subject should be reasonable and should enable the hospitals and doctors to protect themselves from those who think they should receive free treatment when they are perfectly able to pay for what they receive.

It has given me a great deal of pleasure to have this opportunity to place before you some of the problems a community hospital has to contend with and it is my hope that when the opportunity comes to consider proposed laws and ordinances those who are responsible for their adoption will take into consideration the fact that the best charitable organizations are conducted for the benefit of the people and should not be affected by laws in any way which will prevent them from carrying out this important obligation.

THE PROBLEM OF RHEUMATISM

Recently in the Annals of Internal Medicine was published "The Present Status of the Problem of Rheumatism. A Review of Recent American and English Literature on Rheumatism and Arthritis." It was written by Philip S. Hench, Walter Bauer

Almon A. Fletcher, David Christ, Francis C. Hall and Preston White.

Reprints of this Review under the auspices of the American Committee for the Control of Rheumatism can be secured by any interested physician by sending one dollar to the Secretary, Dr. Loring T. Swalm, 377 Marlborough Street, Boston.

VERMONT STATE MEDICAL SOCIETY

THE OPTIC DISK AS AN AID TO DIAGNOSIS
IN CENTRAL NERVE LESIONS*

BY GEORGE G MARSHALL, M D †

INTRACRANIAL conditions causing disk changes in order of their frequency are tumors, chronic abscesses, and injuries to the skull causing hemorrhage with increased intracranial pressure. Tubercular meningitis and syphilis are less frequent causes. Chronic arachnoiditis is not an infrequent etiology of choked disk, and secondary optic atrophy. Of the above causes, intracranial tumors are the most frequent, ranging from 80 per cent to 90 per cent of all cases. There are other causes, which will not be discussed in this brief paper, but it may be stated that choked disk is seldom present in encephalitis, only one case being reported in the recent St. Louis Epidemic.

It must be the experience of every practitioner that frequently negative disk findings are reported when there are manifest intracranial pressure symptoms, and at other times of a marked choked disk being present, when there are few or no other symptoms pointing to intracranial lesions. Let us review briefly the conditions that cause choked disk, their relation to the cerebrospinal fluid circulation, and to the lymph flow from the optic nerve head. The cerebrospinal fluid is largely secreted by the choroid plexus within the ventricles, and the flow is from the lateral ventricle into the third, by the intraventricular foramen. From the third ventricle it flows through the aqueduct of Sylvius into the fourth and from here through the foramen of Magendie and Luschka it empties into the basal cisterna, from which it spreads up over the cerebral surface beneath the arachnoid, and a portion circulating through the spinal canal. The anterior part of the third ventricle rests on the optic chiasm and distention of this ventricle causes edema of the disk, by obstruction of the lymph flow in the optic nerve sheath, which is an invagination of, and continuous with, the arachnoid membrane. Intracranial tumors, abscesses, hemorrhages or cysts, so located as to distort and interfere with the drainage functions of the ventricles give rise to choking of the disk, and conversely pathological growths not so located do not cause disk changes. Frontal lobe tumors may cause choked disk of the opposite side and optic atrophy with anosmia of the same side. Disturbances of the vision may not bear a direct relation to the amount

of papilledema. While choked disk is of primary importance in diagnosing intracranial pathology, and should never be treated lightly, its absence is of less value. Pressure from beneath the chiasm, such as is produced by pituitary tumors, does not cause choked disk; but rather primary optic atrophy, associated with bilateral hemianopsia. Changes in the visual field are frequently present before there are disk changes, and the former is often, of greater help in the localizing of cerebral tumors.

A brief review of a few cases will illustrate the importance of studying the disk in all suspected intracranial conditions, and they will also show that grave cerebral pathology may be present, with no papillary changes.

CASE 1, J. R. aged thirty seven, foreman in a woolen mill. On the morning of Feb. 7, 1927, he was taken suddenly with violent pain in the occipital region, cried out, fell forward, and was unconscious for about fifteen minutes. There was no paralysis following, but headaches and vomiting continued for several days. He returned to work much improved, twenty days after the attack, and continued at his work until March 10, two weeks later, when in the night, he was found unconscious and breathing stertorously. Following this seizure, there was paralysis of the left arm and leg. Spinal fluid contained blood. Wassermann and urine negative. The paralysis and general symptoms improved until the tenth day, at which time he had convulsions, followed by complete paralysis of the left side. On the next day, a right temporal decompression was done. At operation, a tense bulging dura was found, and on incision of it bloody fluid escaped. The patient continued to grow worse, temperature rising to 107° before death on March 23. At autopsy, a large clot was found in the right lateral ventricle. Notwithstanding the marked increased intracranial pressure from the clot for fourteen days, there were no changes in the disk.

CASE 2, Mrs. J. E. aged thirty seven, mother of six healthy children. Soon after the birth of her last child in March 1933, she began to have severe headaches, with vertigo and double vision. She was admitted to the Rutland Hospital in December 1933. Her chief complaints were headache, diplopia, vertigo, vomiting and great mental anxiety. The pupils were equal, and reacted to light, fundi were normal, and the field of vision was moderately contracted. On the fifth day of her stay in the hospital, she was taken with violent pain in the head, and soon went into coma, with pupils widely dilated. The temperature rose to 104.4° before death, about eighteen hours after the onset of the coma. Autopsy revealed a large ruptured glioma at the base of the brain, extending from the sella turcica back between the cerebral hemispheres and cerebellum. Here was a case with a large cerebral tumor, in which the disks were negative. The only eye symptom was diplopia.

CASE 3, Mrs. A. I. aged thirty two. On April 22,

*Read at the Annual Meeting of the Vermont State Medical Society at Burlington October 4, 1934.

†Marshall, George G.—Member of Staff, Rutland Hospital and Proctor Hospital. For record and address of author see "This Week's Issue" page 1232.

1919 she came to the office complaining of falling vision and severe headaches. Vision of the right eye was 20-50 and the left 20-200. Headaches were becoming more severe, and there was falling of her hair irregularly and she was gaining weight. Symptoms showed dysfunction of the pituitary. Both disks were pale, not choked and there was bilateral hemianopsia. She was operated by Dr. Cushing who removed a pituitary tumor. The patient made a rapid recovery. The vision of the right eye was restored to 20-20 and the left remained at 20-200. Today after fifteen years this patient has nearly normal central vision of the right eye and enjoys good health. This case was diagnosed almost solely by the atrophic disks, and visual field changes.

CASE 4 Mrs. I. U. aged thirty six entered the Rutland Hospital May 20 1934. Chief complaints Falling vision and inability to walk, for lack of coordination. Family history Father died following an operation for brain tumor at forty seven. One sister six years older than the patient, died at age twenty-eight of cerebellar tumor. This sister was blind two months before death, and coma preceded the end by two weeks. Mrs. U. was an active girl, teacher of athletics. Married at twenty six and four years later gave birth to a healthy baby. In the summer of 1932 she began having frontal headaches and difficulty in walking on account of ataxia. At the same time she noticed falling vision. She would occasionally fall, and be in a semi-conscious state for a short time. The vision continued to fall, so that by April 1933 she was no longer able to write and walking became more difficult. Examination at the time of entering the hospital revealed positive Romberg and marked ataxia. Pupils were dilated and contracted feebly to light, but did not maintain contraction. Vision of the right eye was limited to the counting of fingers at four feet, and there was loss of light perception in the left. Both disks were choked, and there was secondary optic atrophy. Except for the disks the fundi were normal. Lateral nystagmus was present at times. X-ray showed destruction of the postclival process and enlargement of the sella turcica. The visual field of the right eye was cut off on the temporal side to the median line and did not extend over fifteen degrees in any other direction. Left visual field could not be taken. The patient was growing worse with increasing pain in back of the head and neck. She was vomiting and confined to her bed. On June 7 she was taken to the New England Deaconess Hospital in Boston, where a diagnosis of cerebellar tumor was made on the strength of secondary optic atrophy, nystagmus and ataxia. Operation under local anesthesia was performed by Dr. Horrax, with the following findings: a large hemangioma was found occupying the fourth ventricle and was found herniating through the foramen magnum down into the spinal canal. The lower portion of the tumor was removed but that part in the fourth ventricle could not be on account of its delicate position and because large blood vessels traversed this portion of the tumor. The patient made a good postoperative recovery and intensive x-ray treatment was administered three weeks after the operation. The results today are as follows: and the patient is free from headache. Nausea and ataxia are much improved. There is slight improvement in her vision. In this case the x-ray of the sella and the temporal hemianopsia suggested pituitary tumor but secondary optic atrophy does not occur from pituitary tumors.

This patient had been having brain tumor symptoms for about two years. If the disks had been

examined her condition would have been diagnosed before permanent damage was done.

Syphilis which was suspected should have been confirmed or excluded without waste of time.

CASE 5 Miss A. H. aged nineteen was first seen Nov. 13 1919 complaining of noises in the head growing deafness of the right ear dizzy and severe headaches. No visual defect was noticed. The patient was not seen again until June 1920. She then had lost the vision of the right eye and that of the left was very poor. The pupils were dilated, and there was marked choking of the disks, dizziness, nausea, headaches and ataxia were all present. Wassermann and urine were negative. X-ray showed sella turcica destroyed, except for the anterior clival process. The patient was operated by Dr. Cushing June 25 1920 who removed a right acoustic tumor. The localization was made by the choked disk deafness of the right ear and ataxia. Choking of the disk is practically always present in acoustic neuromas and there is early deafness of the affected side. While destruction of the sella turcica was shown by the x-ray this condition is often present in tumors located elsewhere in the skull. This patient was relieved of her pressure symptoms but there was no improvement in her vision and she died two years later. Doubtless, an examination of the eyes at the time of her first visit would have shown disk changes and the true diagnosis made, giving an opportunity for early operation.

While cerebral tumors and abscesses are the most frequent causes of choked disk, chronic arachnoiditis is not rare, though less frequently recognized. Arachnoiditis causes a most marked choking of the disk which may come on rapidly so that prompt recognition and surgical treatment are imperative to save the vision. Chronic arachnoiditis by adhesions causes blocking of the cerebrospinal circulation, resulting in distention of the ventricles and of the cisternae. Case histories of this condition have been reported by various writers among whom are Cushing, Horrax, Craig, Frazier, Cutler and others. The symptoms so resemble those of brain tumor that until operation a differential diagnosis cannot be made, and for this reason this pathological condition has received the name of pseudotumor or tumor suspect. I have seen four cases of chronic arachnoiditis, presenting the symptoms of intracranial tumor, all of which had rapid falling vision with marked choking of the disk. The diagnosis was confirmed by operation and the subsequent history. I have in a previous paper reported three cases and will now review one of these three, since she presents a most typical history and eighteen months have elapsed since my first report.

CASE 6 Miss N. H. aged twenty was first seen July 15 1913 when she gave the following condensed history: Double vision for the past three weeks, left eye converged, vision blurred, frontal headaches shifting to occipital, is dizzy and has soreness in back of the neck. Vision of the right eye 20-30 minus left 20-60. There was choking of the disks most marked in the left eye. Left pupil dilated. The patient had gained thirty pounds in the past eight months. Patellar biceps and triceps reflexes absent. Wassermann and urine negative.

She entered the Peter Bent Brigham hospital in September, 1932. Dr. Cutler did a suboccipital operation under local anesthesia. Considerable cerebrospinal fluid, found enclosed in an adherent arachnoid, was released from the cerebella fossa. No tumor was found. On October 10 the patient returned home. November 10 the vision of the right eye was 20/30, and left 20/40, and there was no diplopia, headache or dizziness. Disks were still choked, but much less. Reflexes absent. Field of vision was moderately contracted. February 20, 1933, the vision of each eye was 20/30. She was having no dizziness, headache or ataxia. This patient has since married, and has a healthy seven months old baby. On September 22, of the present year, the vision of each eye was 20/20. She is free from symptoms, though the reflexes are still absent.

Not all cases of arachnoiditis are so extensive. In some, the most marked symptoms may be loss of sense of smell or of hearing in one ear, with paresis of groups of muscles. The following history illustrates such a case.

Mrs. W. D. aged forty-two, on Nov. 14, 1933, was taken with severe occipital headache, and general ill feeling, which continued for two weeks. On November 28 in the night, she had severe pain in the occiput, radiating to the right ear. She attempted to get out of bed, and as she got on to her feet, her legs crumpled, and she was nearly helpless. On examination it was found that she had decided tenderness over the base of the skull. There was partial paralysis of the left arm and leg, left side of face, and of the right external rectus. There was ptosis of the right eye, right pupil contracted. The sense of smell was lost, and sensation for heat and pain on the left side absent, but sensation to touch was present. The reflexes were increased. The mind was clear. This condition lasted about two weeks. Then gradual recovery began and in about two months the patient had regained her usual health, including return of the sense of smell and of single vision. While this case was not confirmed by operation, she was studied most carefully by Dr. Bellerose and me, and it was our conviction that this was a case of circumscribed arachnoiditis.

I will next report my last and most striking case which illustrates how quickly disk changes may take place, and the importance of prompt surgical interference to save the sight.

Miss J. C. aged nine, had none of the usual symptoms, such as headache, vertigo or changes in her reflexes. Her only symptom was rapid failing vision, first noticed about two weeks before I saw her. She had septic tonsillitis in Feb. 1933, but had made a good recovery. On April 14 when I first saw her, she presented every appearance of a healthy, happy and a rather precocious child. The vision of the right eye was reduced to 3/200, and to poor perception of light in the left. There was choking of the disks, right 3D and left 4D. Examination on the two following mornings confirmed the first findings and she was referred to the Peter Bent Brigham Hospital, where, on April 18, Dr. Cutler operated on her. After his examination, and before operation, Dr. Cutler made a tentative diagnosis of either arachnoiditis or brain tumor. His physical findings were also negative, except for the loss of vision, and choking of the disks without hemorrhage. A ventriculograph revealed normal ventricles. To relieve the pressure, and save the sight, he did a right temporal

decompression. The dura was tense, and was freely incised. The arachnoid was very wet, and great quantities of fluid ran from the entire surface. No tumor was found. The next day, the patient's general condition was good. Recovery of vision was rapid, so that by May 27, about five weeks after the operation, the vision of the right eye was 20/20, and the left 20/30, and by July 15, the vision of each eye was normal, and remains the same to-day after eighteen months, though there is some pallor of each disk. In this patient, there could not have been more than four weeks from the beginning of failing vision, to the time of operation, and no doubt, without prompt relief of the intracranial tension, permanent blindness would have resulted.

From these reports, we can draw the following summary. The first two, one with a large clot in the right lateral ventricle, and one with a ruptured glioma at the base of the brain, showed no changes of the nerve head. Consequently, in these two, the disks were of negative diagnostic value. The third showed primary optic atrophy, and a pituitary tumor was diagnosed, operated early, and good vision of one eye was preserved. The fourth and fifth cases showed choked disks with secondary optic atrophy, in which the diagnosis and operation were so late, that in the one with the cerebellar tumor, the vision was damaged beyond hope of recovery, and the one with acoustic neuroma was blind at the time of operation. The last two cases of arachnoiditis were fortunately diagnosed and operated early, and in these two there was complete recovery of the vision.

Conclusion. Optic atrophy or choked disk may be the first symptom of central nerve lesions, consequently ophthalmoscopic examination of the eyes should be made in every suspected case, and opportunity given these patients for an early diagnosis and operation.

REFERENCES

1. Craig W. M. Chronic cystic arachnoiditis. *Am J Surg* 17: 384 (Sept.) 1932.
2. Horrax G. Generalized cisternal arachnoiditis simulating cerebellar tumor: its surgical treatment, and end results. *Arch Surg* 9: 95 (July) 1924.
3. Frazier C. H. Cerebral pseudotumors. *Arch Neurol & Psychiat* 24: 1117 (Dec.) 1930.
4. Cushing Harvey. Strangulation of the nervi abducentes by lateral branches of the basilar artery in cases of brain tumor. *Brain* 33: 204 (Oct.) 1910-11.
5. Cutler Elliott C. and Zollinger Robert. Case studies in chronic arachnoiditis. *J. A. M. A.* 100: 1022 (Apr.) 1933.
6. Marshall G. G. Cerebral pseudotumors or chronic arachnoiditis. *Am J Ophth* 16: 799 (Sept.) 1933.

MISCELLANY

VERMONT DEPARTMENT OF PUBLIC HEALTH

APRIL, 1935

During the month of April, there were reported to the Vermont Department of Public Health the following cases of communicable diseases: chicken pox 119, diphtheria 6, German measles 1506, measles 116, mumps 30, scarlet fever 79, typhoid fever 1, smallpox 1, whooping cough 90 and tuberculosis 6. In April the Laboratory of Hygiene made a total

of 1771 examinations classified in the following manner

Examinations for diphtheria bacilli	136
" " Widal reaction of typhoid fever	80
undulant fever	63
gonococci in pus	156
tubercle bacilli	259
syphilis	547
of water chemical and bacteriological	61
water bacteriological	209
milk market	117
milk submitted for chemical only	24
milk submitted for microscopical only	39
foods	4
for courts autopsies	1
courts miscellaneous	10
of animal heads for evidence of rabies	2
for the presence of malaria	0
miscellaneous	81
Autopsies to complete death returns	2

The Division of Venereal Diseases received reports of thirty five cases of gonorrhea and twelve cases of syphilis. Eight hundred and fifty four outfits for Wassermann tests and 386 gonorrheal slides were distributed by this Division in April.

The nurses of the Poliomyelitis After-Care Division visited ninety two patients in April. One patient was discharged from the Audubon Hospital two patients discharged from the Children's Hospital and one patient admitted to the Massachusetts General Hospital. Six pieces of apparatus were fitted by the nurses of this Division and twenty four orthopedic corrections made to shoes.

The Director of the Division of Public Health Nursing devoted most of her time this month supervising the V E R A nurses which include 37 staff nurses four supervisors and three dental hygienists now working in the state.

MAY 1935

The following communicable diseases were reported to this office during the month of May: Chicken pox

195 diphtheria 1, measles 358 mumps 14 scarlet fever 36 poliomyelitis 1, typhoid fever 3 undulant fever 3 whooping cough 108 German measles 1650 tuberculosis 5

Examinations were made in the Laboratory of Hygiene totaling 1886 classified as follows

Examinations for diphtheria bacilli	114
" " Widal reaction of typhoid fever	42
undulant fever	61
gonococci in pus	153
of tubercle bacilli	229
for syphilis	636
of water chemical and bacteriological	91
water bacteriological	201
milk market	223
milk submitted for chemical only	14
milk, submitted for microscopical only	0
foods	8
for courts autopsies	1
courts miscellaneous	18
of animal heads for evidence of rabies	3
for presence of malaria	1
miscellaneous	41

Twenty five cases of gonorrhea and seventeen cases of syphilis were reported to our Division of Communicable Diseases. There were 943 Wassermann outfits and 416 gonorrheal outfits distributed by this Division in May.

The Director of the Division of Tuberculosis visited fourteen towns of the State with the health show of this Division. The school paper *Modern Health Crusader* was printed and 10 000 copies distributed.

The nurses of the Poliomyelitis After-Care Division saw 157 patients this month, 24 in their homes 1 at the office and 132 at the spring clinics held at eight centers of the State. Of these 132 cases, 53 were non-polio ones. The vocational worker of this Division reports sales made amounting to \$135.72.

The State Advisory Nurse's time is devoted to the supervision of the V E R A nurses. The nurse has also attended several meetings and assisted at the Staff Nurses Education and Visiting Housekeepers Conference.

CASE RECORDS of the MASSACHUSETTS GENERAL HOSPITAL

ANTE MORTEM AND POST MORTEM RECORDS AS USED
IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C CABOT, M.D

CASE 21261

PRESENTATION OF CASE

A fifty-seven year old American entered complaining of recurrent hemoptysis

For years he had had a chronic cough Eighteen years before admission he had lobar pneumonia He had been especially well since then except for a persisting chronic pharyngeal discharge associated with a hacking cough X-ray films taken six years before entry showed healed apical tuberculosis without any evidence of activity This impression was confirmed two years later Four years before entry he began having slight shortness of breath upon exertion Two years before entry he had a typical attack of coronary thrombosis with left ventricular infarct as shown by electrocardiogram Six months before entry he had an attack of right upper quadrant pain which radiated to the back Associated with this were jaundice and clay colored stools which soon cleared up Three months before admission hemoptysis was noticed for the first time Usually there was simply streaking of the sputum with blood and occasionally he raised as much as a teaspoonful of fresh bright blood The following month he was quite well but during the month before admission he developed malaise, shortness of breath, weakness and a loss of six pounds in weight During the past two weeks he ran a slightly elevated temperature, ranging from 99° to 102° During this period he had occasional recurrences of the hemoptysis

Physical examination showed a thin, perspiring, sleepy, elderly man There was decreased chest expansion on the left The intercostal spaces on this side were full The lungs showed hyperresonance anteriorly and in the right back In the left back there was dullness to flatness extending up to the midscapular region, with decreased to absent breath sounds and no transmission of vocal fremitus or spoken voice It was not possible to determine the size of the heart because of hyperresonance The heart sounds were heard best just to the right of the sternum at the level of the fifth interspace No murmurs were heard The blood pressure was 85/60 Abdominal examination at this time was not remarkable There was slight overcurving of the fingernails but no definite clubbing

The temperature was 100.8°, the pulse 90 The respirations were 20

Examination of the urine was negative The blood showed a red cell count of 5,690,000, with a hemoglobin of 85 per cent The white cell count was 17,000, 83 per cent polymorphonuclears The sputum was thick, mucopurulent, and contained small amounts of blood, numerous cocci but no tubercle bacilli The stools were negative The nonprotein nitrogen of the blood was 30 milligrams A Hinton test was negative

X-ray examination of the chest showed shifting homogeneous dullness occupying the left side of the chest which obliterated the left side of the diaphragm and heart border and displaced the heart markedly toward the right In the upper aspect of the left lung root there was a lobulated shadow which had the appearance of large masses in the lung Extending outward from this area were numerous small dense lines Similar lines were seen in the right apex The remainder of the lung was clear One film taken with the patient supine showed that the left main bronchus was smaller than the right

After a chest tap on the second day and the introduction of a small quantity of air there was a chest fluid level The heart and mediastinum were still displaced toward the right The chest fluid contained 4,700 red blood cells and 670 white blood cells 80 per cent of which were lymphocytes

He was put on digitalis, 1½ grams a day On the sixth day he began to vomit and complain of abdominal pain and distention The following day an ileostomy was performed which relieved his abdominal symptoms tremendously At the end of twenty-four hours, however, he began to hiccup rapidly failed and died on the fifth postoperative day

DIFFERENTIAL DIAGNOSIS

DR GERALD BLAKE The shortness of breath on exertion two years before the coronary thrombosis may have been dependent upon the condition of the coronary vessels at that time The attack of right upper quadrant pain associated with jaundice was probably due to a gall stone attack Frequently gall bladder disease, gall stones, and coronary disease are found in the same individual The hemoptyses at first make us think of tuberculosis in a man of this age or younger and after that make us think of all the other causes of hemoptyses, from tumors of the bronchi or lungs to so-called apoplexy of the lung in a man whose arteries were sclerosed as this man's arteries were

The physical examination shows a thin, perspiring, sleepy elderly man of fifty-seven, suggesting loss of weight, fever, weakness and arteries that are older than his years The rest of the physical examination shows fluid in the left chest and compensatory breathing or

emphysema of the right chest with an extreme degree of displacement of the heart to the right, perhaps more than the amount of fluid alone would account for. The blood pressure is low as a result of the earlier myocardial infarction and his recent loss of blood and recent fever. There is no evidence of cardiac failure in the clear right lung base and negative abdominal examination. The absence of definite clubbing is against a long standing infectious process in the lung.

The high red count and hemoglobin of 85 per cent may be secondary to the dehydration or emphysema or both. The white count of 17,000, with 83 per cent polymorphonuclears and the temperature ranging to 102° while suggesting an acute infectious process is not inconsistent with the presence of malignant disease alone.

The finding of 80 per cent lymphocytes in the chest fluid while most consistent with tuberculous may also be found in chest fluids from other causes. The absence of endothelial cells is of some significance.

Before seeing the x ray plates I might say that tuberculosis is not ruled out as the cause of this man's condition although the absence of fever and malaise during the first two months of hemoptysis is against it. In addition to tuberculosis we have to look for evidence of tumor of the lung or bronchi either primary or metastatic and either carcinoma or sarcoma or lymphoma, as well as mediastinal tumors, lymphomata or metastatic glands from cancer elsewhere. The description of the x ray shows a left chest filled with fluid which has displaced the heart, shows dense lines running to both apices which are consistent with healed apical tuberculosis and shows a left main bronchus smaller than the right probably due to pressure of masses outside the bronchus but possibly to carcinoma of the bronchus or a former severe infectious process, and shows what looks like a large mass in the lung near the upper part of the left lung root. This appears to rule out tuberculosis as a diagnosis.

DR. AUBREY O. HAMPTON Examination of the chest six years before admission shows these changes in the right apex. We note also some calcium in the left apex, a fairly typical picture of an old tuberculous infection. He had no enlargement of the heart at that time. This examination at the present entry shows marked displacement of the heart and mediastinum toward the right by this homogeneous shadow which has a very definitely nodular margin on the upper medial aspect. We wanted to show the ribs and vertebrae and we thought we demonstrated the left main bronchus in this Bucky film. Here is the trachea and right main bronchus, a small sized left main bronchus going very irregularly across the spine here. A large mass there above and around the left main

bronchus, then this queer curve in the region of the bifurcation. A mass again here at the carina. There is no evidence of disease in the bones and after a chest tap he had fluid levels and again the shadow which we interpreted as a mass. It is rather remarkable that the heart is so far displaced to the right without the left lung being completely obscured by fluid. The border of the right side of the heart is rather prominent and full.

DR. BLAKE Whether this tumor mass is primary or metastatic is difficult to say. We have from the story no suggestion of primary carcinoma or sarcoma elsewhere aside from the possibility that the intestinal obstruction may have been caused by a primary growth in the large intestine. Evidently he developed intestinal obstruction which may have been due to paralytic ileus or mesenteric thrombosis, or most likely extension from the tumor of the left lung. Hiccup was probably due to the abdominal condition causing obstruction. The appearance of the mass in the lungs is consistent. I should say either with primary or metastatic disease the tendency to hemoptysis being perhaps more common with primary disease than with metastasis.

We are dealing with a rapidly progressing disease of the lung which causes the patient's death three months after the first hemoptysis and only five weeks after he first complains of weakness, malaise fever, etc. The first thing to do is to make sure that the condition is not based on congestive changes in his lungs and resulting changes in the right side of his heart. That I think is ruled out because of the absence of evidence of congestive failure of the heart.

I should like to know whether this man's prostate showed anything abnormal. Is there any note on that?

DR. DONALD S. KING I do not believe so.

DR. BLAKE The mass at the lung root, as I said, may be primary or secondary. The absence of evidence of metastases elsewhere I should think was somewhat against its being a metastatic growth. The rapidity with which the disease progressed is a little bit contrary to the usual rule of primary bronchiogenic carcinomas. However it would seem to me that that is probably the best diagnosis in this case and that metastasis to the abdomen is the cause of his intestinal obstruction. My second guess would be carcinoma elsewhere, not discovered, in the abdominal cavity as a primary lesion and that this is a metastatic growth in the lung.

DR. TRACY B. MALLORY Dr. King have you any comment?

DR. KING Dr. Brailey had direct charge of this patient. I saw him in consultation in regard to his chest condition. The case illustrates two procedures which are definitely helpful in the diagnosis of obscure lung cases. First the

removal of fluid and replacement by air, and secondly, an over-exposed film to show the outlines of trachea and bronchi. In this particular case the artificial pneumothorax did not help to localize the growth as it has in other cases. The over-exposed films with the Bucky diaphragm did however give very definite information as Dr Hampton has shown. The left main bronchus is clearly shown to be encroached upon by the tumor, and the picture shown in the x-ray film is the exact picture shown at autopsy.

DR ALLEN G BRAILEY We were struck with the fact that he was fifty-seven and had already had two major illnesses during two years. He previously had been well and it was a temptation to connect this illness with one of the other two. He certainly had coronary thrombosis and the story of right upper quadrant pain accompanied by jaundice and clay-colored stools left little doubt about cholelithiasis. As a matter of fact the suggestion was made by one who saw him of infarct of the lung. But six months had elapsed since he had had an episode that possibly suggested another coronary occlusion as a source of emboli. We came to the same conclusion as Dr Blake, that it was carcinoma, most likely primary in the bronchus.

DR HAMPTON He had an abdominal film which I did not demonstrate. It shows small bowel dilatation with gas. He also had a Graham gall bladder examination which was positive.

CLINICAL DIAGNOSIS

Carcinoma of the lung

DR GERALD BLAKE'S DIAGNOSES

Primary carcinoma of the lung with abdominal metastases
Intestinal obstruction
Old coronary occlusion
Cholelithiasis

ANATOMIC DIAGNOSES

Primary carcinoma of the left primary bronchus with metastases to the adrenals, jejunum, appendix and mesentery
Lobar pneumonia, left lower lobe
Acute serofibrinous pleurisy
Coronary sclerosis with occlusion of the left descending branch
Infarct of the heart, old
Choledocholithiasis
Healed pulmonary tuberculosis, bilateral, apical
Intestinal obstruction
Operative wound catheter jejunostomy
Arteriosclerosis

PATHOLOGIC DISCUSSION

DR MALLORY The autopsy here showed a typical primary carcinoma of the left main

bronchus which narrowed the lumen, I think, both by the internal growth and the external pressure of the larger tumor mass. The tumor had also directly invaded the pericardium, as primary carcinoma of the lung sometimes does, had grown along the pulmonary veins, and a nodule two centimeters in size of tumor tissue was present within the pericardial cavity. Metastases had developed and were somewhat unusual in distribution. We found metastases in both adrenals, the most typical form of metastasis from cancer of the lung in our series of cases here, but we also found a metastasis in the jejunum and not until it was examined histologically could we be certain that it was not a primary carcinoma of the small intestine. It involved the mucosa and muscularis of the bowel, was deeply ulcerated in the center, and had all the gross characteristics of a primary carcinoma. There was another metastatic nodule occupying the midportion of the appendix, which is an unusual site for a metastasis. The histologic examination however, shows very clearly that it is a characteristic oat cell carcinoma of the lung and the metastases in the intestinal tract are of the same structure.

The various other episodes in his past history were also successfully accounted for. We found a well-marked old fibrous tuberculosis at the right apex, a sharply localized old infarct at the apex of the left ventricle and a complete occlusion of the descending branch of the left coronary artery. The gall bladder was free from stones, but a stone was found just at the junction of the hepatic ducts, and the papilla of Vater was filled with fine sand-like material.

I think one point of distinct interest about the case is that because of previous x-ray examinations we were able to check fairly accurately the length of time which he had this carcinoma of the lung. So often we have no leads whatever as to the duration of the cancer. In this case we can be quite sure that it is less than a year's duration.

A PHYSICIAN What was the cause of the intestinal obstruction?

DR MALLORY Strangely enough it was not one of the metastatic nodules but a cord of fibrous tissue extending from the omentum to the sigmoid which completely invaded a loop of terminal ileum.

CASE 21262

PRESENTATION OF CASE

A fifty-two year old Italian housewife entered complaining of an abdominal tumor.

Six months before entry the patient developed fleeting joint pains first in her elbows, then in her knees and finally in her hands. No more than two joints were ever involved simul-

tanously At about the same time she noticed every morning a profuse generalized sweating which disappeared after she got out of bed She felt quite tired and required more sleep than usual A physician said she had the "grippe" but nothing was done in spite of a continuation of her symptoms until two months before entry At that time the joint pains and night sweats had stopped but malaise had continued She visited another physician who told her she had an abdominal tumor for which he gave her some medicine Her symptoms continued and finally, three days before entry she consulted another physician who immediately referred her to the hospital She had lost eighteen pounds during the past six months During this same period she had slight shortness of breath upon exertion but no orthopnea, cough or sputum Her appetite had been poor and she had become constipated, requiring cathartics about once a week There was, however no history of hematemesis, nausea or vomiting The menopause had occurred five years before entry There was no history of bleeding since then

Her family history is non contributory

She had been married thirty years Her husband and two children were living and well She had had one miscarriage

Physical examination showed a fairly well developed and nourished woman in no acute distress, showing evidence of recent weight loss The heart and lungs were negative The blood pressure was 130/80 The abdomen was protuberant and flaccid In the right upper quadrant and extending down to the level of the umbilicus was a large, non tender hard irregularly surfaced, freely movable mass 10 by 14 centimeters Pelvic and rectal examinations were negative.

The temperature was 99° the pulse 90 The respirations were 24

Examination of the urine was negative except for a green test for sugar The blood showed a red cell count of 3 930 000, with a hemoglobin of 70 per cent. The white cell count was 9 000 61 per cent polymorphonuclears and Three stools were brownish gray in color and showed positive guaiac tests The nonprotein nitrogen of the blood was 26 milligrams An echinococcus skin test was negative. A Hinton test was negative.

A barium enema passed through the ileocecal valve There was a large defect on the upper border of the proximal half of the transverse colon produced apparently by the large abdominal mass In a lateral view the tumor appears to lie anterior to the bowel but still not in contact with it There was no evidence of obstruction It was felt that the tumor was not an intrinsic lesion of the colon A gastrointestinal series showed that the second and third portions of the duodenum were displaced backward and to the left by the mass which was

below and anterior to the pancreas The barium passed readily through the entire duodenum, entered the jejunum and extended to a point just below the second portion of the duodenum At this point it entered the mass and became irregular and somewhat dilated At the end of five hours there was still some barium in the jejunum at the point of the lesion An intravenous pyelogram was negative

On the seventh day an exploratory laparotomy was performed. She died poorly postoperatively and died on the second postoperative day

DIFFERENTIAL DIAGNOSIS

DR. GRANTLEY W TAYLOR On the strength of the history there is very little to localize her trouble or to identify any marked characteristics. She had just been run down The joint pains, the night sweats and the previous diagnosis of "grippe" all suggest that there may have been some inflammatory element in the onset of the disorder but they had cleared up The slight shortness of breath, the loss of weight and the fatigue, requiring more sleep would, I think, form a part in any picture of a debilitating condition There is very little pointing to the gastrointestinal tract except the diminution of appetite and, of course the constipation Cathartics once a week do not indicate any very marked change in her bowel habits

"In the right upper quadrant was a non tender, hard, irregular surfaced freely movable mass measuring 10 to 14 centimeters" That is obviously the explanation of all that ails her and we have to try to make up our minds what this mass is I think the history helps us very little in locating the mass. We can get no farther with our physical examination except to say it is in the upper quadrant, non tender, irregular surfaced and hard, all of which argue for its being carcinoma or neoplasm of some sort It is freely movable which it seems to me with a mass of that size would make it much more likely to be intraabdominal than retroperitoneal and that is almost as far as we can go in the strength of her physical examination

"Three stools were brownish gray in color and gave positive guaiac tests" That statement is significant that the gastrointestinal tract is something to be scrutinized with special attention

The white cell count of the blood and her essentially normal chart are in conflict with the suggestion we got earlier from the night sweats and the history of grippe that there may be a strong inflammatory element in this mass We know that a long standing inflammatory process will let a chart subside and let a leucocytosis subside But it seems to me something might have been picked up if we are dealing with a

process primarily infectious or inflammatory, in the shape of change in the differential blood count or slight temperature or elevation of leucocytes

The history, physical and laboratory findings do not do very much more than insist on this tumor and so we turn to the x-rays which are very interesting and very difficult for me to interpret. The things which would be likely to be anterior to the colon on the right side would be the liver, or possibly some mass extending from the stomach across the midline to the right side. Most of the other intraabdominal structures are retrocolic. The question is whether it was not involving the anterior abdominal wall itself, but that tends to be negated somewhat by the freely movable character of the mass.

"In a lateral view the tumor appears to lie anterior to the bowel but not in contact with it." "The duodenum is displaced to the left." This just emphasizes that the mass is a large one and that it is in the right upper quadrant. "The mass is below and anterior to the pancreas." I think that the radiologist who will tell you exactly where the pancreas is, and that a mass is below the pancreas or above it, is a pretty courageous fellow, but that may not be true.

"The barium passed readily through the entire duodenum, entered the jejunum and extended to a point just below the second portion of the duodenum." As regards that point, I think we must see the films. According to the interpretations we have something in front of the colon, below and anterior to the pancreas, distorting the duodenum, and then the barium apparently in the jejunal region showing irregularities.

X-RAY INTERPRETATION

DR AUBREY O HAMPTON We examined the chest, urinary tract, stomach and colon. The chest is fairly normal except for this area of density at the right lung root which may be an enlarged gland. It may be a calcified gland. The chest is otherwise normal. The diaphragm is moderately high on both sides. The heart, mediastinum and esophagus were also examined and as far as I can tell are normal. This film of the urinary tract shows kidney outlines which are perfectly normal. There is an area of density in the region of the palpable mass and this looks like a soft tissue mass. I think this film must have been taken after barium or some opaque mixture and these two shadows which are as dense as calcium are within the mass. It is probably barium. I think the uterus shows there. The bladder is a little more to the left than normal. There could be something low down in the pelvis just to the right of the uterus pushing the uterus to the left. That very queer looking shadow which looks like dye

in the ureter I would like to check before I go any farther. We have to assume that it is a gas shadow in the bowel and the ureter goes through it. I do not see how it could be connected with the urinary tract. Here again is the soft tissue mass and an irregular gas shadow in the center of it. The gas may be within the small bowel as it passed through the mass, according to the note.

This is the location of the mass in the lateral view when barium is in the colon. Here again the center of the mass has a mottled appearance as though there were some opaque mixture and gas within it. The colon dips down behind and below it. I do not know just how they concluded that the mass was not in contact with the colon. It had to be to do this.

DR TAYLOR Could not the colon have been pushed to the extreme right side by a mass behind it?

DR HAMPTON It is pushed downward, to the right and backward.

DR TAYLOR In a lateral view it would tend to lie on the right side, almost back to the gutter, even if the mass were retrocolic.

DR HAMPTON That may be due to the transverse portion running downward and with a little rotation looking as though it were pushed backward. I think that is the solution, although this is a true lateral view and it looks as if the colon were pushed backward, perhaps more than it really is. I think we are justified in saying that the mass was below the pancreas because we can localize the pancreas by identifying the duodenal loop, if the pancreas is not ectopic we know where it is. I think your criticism is a little bit strong.

I suppose this is the film taken after the motor meal. I assume this is barium in the jejunum occupying the area of the mass. I do not know what other structure it could be. It is not the stomach and that is the only other thing that would fill with barium and look like that. The lumen of the jejunum must be considerably enlarged, grossly abnormal, with multiple filling defects in it. I think this film shows some evidence of invasion of the transverse colon extrinsically.

DIFFERENTIAL DIAGNOSIS CONTINUED

DR TAYLOR I did not want to make an issue about that statement in the x-ray report, except that if the mass is in front of the colon, and if by x-ray it definitely involves the jejunum, it is very hard to reconcile those two statements. The colon and omentum we know hang down as an apron on the lower border of the stomach, covering over all the small intestines in the abdomen which lie up and beneath the colon. This mass definitely involves the jejunum. There is no statement by the radiologist—it is probably

not necessary—whether it was considered extrinsic or intrinsic as regards the jejunum. There is a large filling defect involving that part of the jejunum shortly after the barium leaves the duodenum. The problem is to decide what the nature of that defect is. Curiously enough the jejunum is part of the intestinal tract which is least subject to intrinsic diseases although it is very commonly involved in anything like hernias, obstruction, mesenteric thrombi and that sort of thing. Diseases of the jejunum itself are rare. There have been a series of primary carcinomas of the small intestine reported, but so few that almost every case is worthy of being reported. Lymphoma we know involves that part of the intestinal tract and a great many tumors of the small intestine prove to be lymphomas. It seems to me that it would be rather difficult to picture a tumor secondarily involving the jejunum taking its origin in some other part of the abdomen although this original description of the mass which is freely movable raises the question of the entire omentum being involved with metastatic malignancy from some other source as the ovary, stomach or even the colon. Now I am unable to state on the basis of the evidence available which one of these neoplastic processes may be present in the jejunum.

It seems to me worthwhile to revert again to the possibilities of an inflammatory process in the small intestine as perhaps giving this picture. The question will arise whether this could be regional ileitis and secondary abscess formation which becomes open to barium as it is passing through the region. My own impression is that it would be rather unlikely. An appendix abscess with serosal involvement of the small intestine would give rise to a thing of this sort. We have all seen appendicitis and appendix abscess as the explanation of the most bizarre pictures in the abdomen. I do not know of anything else that would be likely to enter into that picture. It is considerably higher in the small intestine than we find lesions of tuberculosis with secondary inflammatory changes.

My impression is that this patient was explored with the diagnosis of inoperable malignancy of the jejunum and that the surgeon who explored her was hopeful enough to think he was going to find a condition he could do something about. I think that when he got in he found it was something he could not do anything about and took a biopsy for the pathologist. My impression would be that it was inoperable—a mass as extensive as this is described to be can seldom be removed even though on the surface it appeared to be freely movable. The best bet I can make is primary neoplasm in the jejunum, perhaps primary carcinoma and perhaps lymphoma. That is the best I can offer and it is not very good.

DR. TRACY B. MALLORY. Dr. Leland who operated on this patient is not here, but Dr. Lyons was his assistant. He will tell us about it.

CLINICAL DISCUSSION

DR. CHAMP LYONS. At operation the mass was obviously inoperable. Through a right abdominal incision the transverse mesocolon and omentum were found attached to a slightly movable right upper quadrant mass which was obviously very diffusely malignant. In endeavoring to ascertain whether it arose from retroperitoneal tumor or primary malignancy of the bowel at that level it was felt that it was wise to remove some of the attached omentum and in so doing explore a loop of bowel which lay anteriorly in the abdomen. When that was freed off it quite suddenly gave way and opened into the lumen of the intestine. This lumen was clear of barium but the anterior position of the loop and general relationship as far as we could determine without dissecting further suggested that this was more likely a carcinoma of the transverse colon than some primary lesion of the jejunum which was apparent from the x-ray studies. A wick was placed into the opening in the bowel. It was impossible to suture or effect any closure of the bowel and the abdomen was closed after the biopsy was taken. The operation was done under pantopon, scopolamine and local anesthesia.

CLINICAL DIAGNOSIS

(Carcinoma of transverse colon)

DR. GRANTLEY W. TAYLOR'S DIAGNOSIS

Primary malignancy of jejunum, ? carcinoma ? lymphoma

ANATOMIC DIAGNOSIS

Malignant tumor probably carcinoma of the jejunum with extension to colon and regional metastases.
Peritonitis localized acute
Multiple infarcts of the spleen
Operative wound Exploratory laparotomy

PATHOLOGIC DISCUSSION

DR. MALLORY. At autopsy we found a very large tumor mass in the right upper quadrant which involved the first portion of the jejunum and the transverse colon. As we traced down the jejunum we found that it suddenly increased in diameter from the normal size to a tube three times as wide as normal maintained this greater diameter for a length of nearly 10 centimeters and then shut down again to normal size. There was no obstruction. The mucosa was grossly irregular and all layers of the jejunal wall were replaced by tumor. The tumor extended by direct contact into the wall of the

transverse colon which was extensively infiltrated but evidently from the outside in, since the mucosa was perfectly normal, so we felt quite certain that the tumor was primary in the jejunum and only secondarily involved the colon. When it comes to decide what kind of tumor it is, after microscopic slides we are no better off than Dr Taylor was from the clinical history. To be perfectly frank I have not the faintest idea what the tumor is. It is an extremely undifferentiated, highly malignant tumor. So far as cytology is concerned I do not believe it is lymphoma, but I cannot say whether the cells are epithelial. I have called it carcinoma but it is little more than guesswork.

DR TAYLOR: Were there any metastases?

DR MALLORY: In some of the regional nodes, no distant ones.

The New England

Journal of Medicine

SUCCESSOR TO

THE BOSTON MEDICAL AND SURGICAL JOURNAL

Established in 1828

Published by THE MASSACHUSETTS MEDICAL SOCIETY
under the jurisdiction of the

COMMITTEE ON PUBLICATIONS

R. I. LEE, M.D., Chairman
R. B. OSGOOD, M.D.
H. H. LANEY, M.D.
HOMER GISE, M.D.
R. M. SMITH, M.D.

EDITORIAL STAFF

RED HUNT, M.D.
JOHN P. SUTHERLAND, M.D.
GEORGE R. MINOT, M.D.
FRANK H. LANEY, M.D.
SHIRLEY WARREN, M.D.
GROVER L. TOWSE, JR., M.D.
C. GUY LANE, M.D.
STEPHEN ROBINSON, M.D.
HANA ZINZALE, M.D.
BENJAMIN WHITE, PH.D.
HENRY R. VINT, M.D.
ROBERT N. VIG, M.D.
ROBERT M. GREEN, M.D.
CHARLES C. LEON, M.D.
WILLIAM A. FOLGER, M.D.

WALTER P. BOWEN, M.D., Managing Editor

ASSOCIATE EDITORS

GEORGE G. SMITH, M.D.
JOSEPH C. BLIND, M.D.
WILLIAM B. BREED, M.D.

THE NEW HAMPSHIRE MEDICAL SOCIETY

PUBLICATION COMMITTEE

CARLTON R. METCALE, M.D.
HERBERT H. ANDERSON, M.D.
WARREN H. B. STEPHENSON, M.D.

THE VERMONT STATE MEDICAL SOCIETY

PUBLICATION COMMITTEE

WILLIAM G. RUCKER, M.D.
L. H. ROSS, M.D.
C. F. DALTON, M.D.SUBSCRIPTION TERMS: \$5.00 per year in advance postage paid
for the United States Canada \$7.00 per year \$8.50 per year
for all foreign countries belonging to the Postal Union.Material for early publication should be received not later
than noon on Saturday. Orders for reprints must be sent to
the Journal Office, 8 Fenwick.The Journal does not hold itself responsible for statements
made by any contributor.Communications should be addressed to The New England
Journal of Medicine, 8 Fenwick Boston Mass.A BIBLIOGRAPHICAL STUDY OF
SYPHILIS

THE widespread influence of a book can partly be judged by a bibliography of its various editions, reprintings and translations. A persistent demand by the public over a long period of years can only mean a continued value, appreciated in many lands. Such was the fate of the famous medical poem *Syphilis*, written by Giralamo Fracastoro and first issued in 1530. One hundred printings have been traced, published over a period of four hundred years. A carefully composed bibliography of them is now at hand,* the work of two devoted medical humanists.

Whatever the main interests of a physician may be he cannot but be stimulated by this superb bibliographical study. Although one may not revel in dropped lines, "ghosts", collations variants canceled leaves, chain lines and watermarks, gatherings or *Corsivo grande* type,

Danmeitner, Leona and Fulton John F. A bibliography of the poem *Syphilis* since 1530 has collected by Giralamo Fracastoro of Vicenza. New Haven: Yale University Press, 1933. Pp 167 (portrait).

one can appreciate the detective instinct which led the authors to seek out these hundred editions, collate them in great detail and correct the proof of their book. Although this effort, calling for exact observation is valuable to scholars throughout the world the value to the average reader comes in the detailed notes regarding the printers the translators former owners of editions and the availability of existing copies. Fulton's large personal collection must come first although other American and British booklovers such as Cushing, Klebs, Keynes, Krumbhaar Power and others, have a considerable number of copies. Copies known to be in libraries are listed at least those in the more important centers in Europe and America. A remarkable copy of the first edition printed on vellum, is now in the Bibliothèque Nationale, Paris. Its curious history has been worked out in some detail by Mr L. L. Mackall.

Thus one threads together the editions of a book, appreciative of the many hands that made them. Fine and poor well or ill transcribed shabby printing and superb typography cheap reprints and imposing folios, stand in line one hundred strong to testify to the enduring love of scholars and readers for a poem which, although only secondary in importance, gave us the name for one of the greatest scourges of mankind.

CHIROPRACTIC STILL

THE licensing of the chiropractor, who seems to be proud of the fact that he cannot make a diagnosis, and by that license authorizing him to treat any human ailment by chiropractic analysis of the human spinal column and by manual adjusting of the segments and articulations thereof seems to many persons a depth of degradation to which the Commonwealth of Massachusetts cannot fall.

Some shrewd observers are, however, more hesitant to set any limit to the capacity for descent and objectionable as is the principle of licensing substandard practitioners of medicine the actual provisions of House Bill 1157 go beyond anything that has come before the legislature in recent years. Not only do the chiropractors ask that they be permitted to treat any disease by adjustments of the spine, but they would arrogate to themselves the whole field of diagnosis of disease of the spine to the exclusion of all persons not registered as chiropractors.

Section 6 reads as follows "Any person who shall practice or attempt to practice or use the science or system of chiropractic without having complied with the provisions of this act (namely become registered as a chiropractor) shall be guilty of misdemeanor and upon conviction thereof shall be fined not less than fifty dollars nor more than five hundred dollars, or be

imprisoned in the house of correction not less than thirty days nor more than one year or both "

What is this "science or system of chiropractic" which may be used only by a duly registered chiropractor? The definition is found in Section 10 "The system, method or science, commonly known as chiropractic, or the practice of chiropractic, is defined to be the science of spinal examination, the adjusting of the segments and the articulations of the human spinal column by hand only. This definition is inclusive and any and all other methods are hereby declared not to be chiropractic "

The exact meaning of this jumble of words is not clear, but an entirely reasonable interpretation of the two sections is that if a duly registered physician, not also duly registered as a chiropractor, makes a spinal examination on any patient he will be violating the provisions of this bill, and be subject to being into court for this misdemeanor, with a possible fine of \$500.00 and a year in the house of correction.

Such unwarranted attempted interference with the rights and duties of duly registered physicians by a group who boast of their own ignorance and for whose views as to the cause of disease not a particle of scientific evidence has ever been produced, is perhaps characteristic of the times in which we live, but it demands vigorous and persistent opposition by the whole medical profession. Perhaps the members of the legislature do not realize for what the chiropractors are asking. It is the duty of the medical profession to enlighten them.

THIS WEEK'S ISSUE

CONTAINS articles by the following named authors

O'HARE, JAMES P. M.D. Harvard University Medical School 1911. Assistant Professor in Medicine, Harvard Medical School. Senior Associate in Medicine, Peter Bent Brigham Hospital. His subject is "Management of Bright's Disease and Hypertension." Page 1197. Address 520 Commonwealth Avenue, Boston, Massachusetts.

ROBEY, WILLIAM H. M.D. Harvard University Medical School 1895. Clinical Professor of Medicine, Emeritus, Harvard University. Consulting Physician to the Boston City Hospital, Norwood Milton, and Marlborough Hospitals. Former President, Massachusetts Medical Society. His subject is "President's Address." Page 1203. Address 202 Commonwealth Avenue, Boston, Massachusetts.

GIFFIN, LEWIS A. B.S., M.D. Harvard University Medical School 1935. Appointed Internist July 1935-1937. Bellevue Hospital, Second

Medical Division, New York City. His subject is "Paradenolymphitis." Page 1209. Address 27 Arlington Road, West Hartford, Conn.

LAWRENCE, CHARLES H. A.B., M.D. Harvard University Medical School 1908. Physician of the Medical Department and Chief of the Endocrine Clinic, Boston Dispensary. Instructor in Medicine, Tufts College Medical School. Address 520 Commonwealth Avenue, Boston, Massachusetts. Associated with him is

FEIGENBAUM, JACOB. M.D. McGill University Faculty of Medicine, Montreal, Quebec, 1925. Assistant Physician, Boston Dispensary. Assistant in Medicine, Tufts College Medical School. Address Boston Dispensary, Boston, Massachusetts. Their subject is "The Treatment of Acne Vulgaris with Pregnancy Urine Extract." Page 1213.

CLAIBORNE, T. S. B.A., M.D. University of Virginia Department of Medicine, 1932. Associate in Medicine, Lahey Clinic, Boston. His subject is "Bromide Intoxication." Page 1214. Address 605 Commonwealth Avenue, Boston, Massachusetts.

BOWDITCH, INGERSOLL. A.B., S.B. Trustee and Treasurer of the Faulkner Hospital and the Jamaica Plain Dispensary. Former Treasurer of the Community Health Association and Sharon Sanatorium. Now President, Sharon Sanatorium. Member of the American Hospital Association. Vice-President, Hospital Council of Boston. His subject is "Doctors, Hospitals and Legislation." Page 1216. Address 32 Woodland Road, Jamaica Plain, Massachusetts.

MARSHALL, GEORGE G. University of Vermont College of Medicine, 1893. F.A.C.S. Member of Staff, Rutland Hospital and Proctor Hospital. Former Vice President and now President of the Vermont State Medical Society. His subject is "The Optic Disk as an Aid to Diagnosis in Central Nerve Lesions." Page 1220. Address Rutland, Vermont.

The Massachusetts Medical Society

SECTION OF OBSTETRICS AND GYNECOLOGY

C. J. KICKHAM, M.D., <i>Chairman,</i> 524 Commonwealth Ave., Boston, Mass.	R. S. TITUS, M.D., <i>Secretary,</i> 472 Commonwealth Ave., Boston, Mass.
---	--

RÉSUMÉ OF VALUE OF BIOLOGICAL PRODUCTS IN GYNECOLOGY

As insight into the physiology of the female reproductive system and its adjunctive sex characters increases, physicians look hopefully to

the new knowledge for therapeutic innovation that will more certainly relieve some of the common functional gynecological disturbances. The prospect of such clinical benefit seemed bright indeed when hormones derived from the urine of pregnant women were found to have a stimulating effect on rodent ovaries, very similar to that of the follicle stimulating hormone of the anterior pituitary. Such effective substitutes are particularly desirable for until only a few months ago there was no preparation suitable for human use of the anterior pituitary gland or its hormones which had any appreciable effect on the ovaries of even mice, much less monkeys or human beings. Three widely advertised preparations of the pregnancy urine or anterior pituitary like hormone are on the market for clinical use. They are Antuitrin S of Parke, Davis & Co., Folliculin of Squibb & Sons, and Antophylin of the Winthrop Chemical Co. They are all three potent preparations and will stimulate follicle ripening and corpus luteum formation in the ovaries of immature intact rodents and in rabbits. It is most unfortunate, but a fact which clinicians mindful of their patients' good must realize that not one of these preparations has been shown to have any good stimulating effect on human ovaries. On the contrary it has been clearly shown in the case of one of them, at least (and they are all three closely similar) that it has no stimulating effect on monkey or bad on the ovaries of the macaque, a monkey in which the sex physiology is much more similar to human beings than is the reproductive mechanism of any other laboratory animal. Furthermore, two preparations have been shown to have no appreciable stimulating effect on human ovaries.

Because these preparations of so-called ovary stimulating hormone therefore cannot be used to stimulate human ovaries does not mean however that they are without therapeutic value. It has been shown by several clinicians that these pregnancy urine hormones in divided doses totaling from 500 to 2500 rat units will relieve or cure about 60 per cent of women suffering from dysfunctional uterine hemorrhage. They have little if any effect on pure menorrhagia, or on the rhythm of cycles habitually shorter than the common ones of about four weeks. They are also notably ineffective in relieving the excessive flow of the young girl from fifteen to twenty-two years of age. They must not be prescribed for any woman with metrorrhagia until cancer has been ruled out.

The results from the use of this pregnancy urine hormone in essential dysmenorrhoea are not constant. Perhaps 50 per cent of patients will get relief from the severe pain if given from 500 to 1000 rat units in divided doses during the week preceding the expected period. Such re-

sults can have little practical value as such dosage costs several dollars and has a purely temporary effect limited usually to only one period.

Prephysin (Chappel) is the only marketed preparation of that particular anterior pituitary hormone which affects the ovaries of laboratory animals of which the writer is aware. Experience with preparations of the pregnancy urine extract of anterior pituitary like hormone, discussed above, forces us to await carefully studied results in monkeys and in human beings before using Prephysin clinically. It, too is expensive and unlike the other hormones it may be dangerous.

The lactation stimulating hormone prolactin, is marketed by Squibb & Sons. The writer has had no experience with it. Kurzrok and his associates have reported good results.

A third group of new endocrine products, those actually containing the female sex hormone estrin folliculin or theelin have undoubtedly enjoyed an even greater popularity than the anterior pituitary like hormones already discussed. They can be taken by mouth as this sex hormone unlike the anterior pituitary group is not destroyed in the intestinal tract. It is marketed as Theelin by Parke, Davis & Co., Progynon by Schering, Amniotin by Squibb & Sons, and a closely related product as Theolol by Parke, Davis & Co. and as Emmenin by Ayerst McKenna & Harrison. All these cause estrus or heat in the experimental animal, and in doing so they stimulate short lived proliferative changes in the uterus, tubes, cervix, vagina and breasts. If given during several days, weeks or months as the case demands, in divided doses totaling thousands of rat units, they will cause similar changes in these same end-organs of the human female. They do not stimulate the ovaries but are purely substitutive in action. The changes caused by anything less than amazingly high doses of many tens of thousands of rat units, have probably about as much effect on the patient's own ovarian mechanism as hair dye has on the chromatophores and menstruation caused by them has about as much effect on the patient's sex physiology as the weeping from onion vapor has on her emotions.

They are notably useful to relieve symptoms of the menopause and for acute vaginitis in the prepuberal child. Though an adequate trial is fairly expensive there is some justification for their being used in stubborn cases of essential dysmenorrhoea and in sterility, after demonstration that ovulation and insemination are normal and the tubes patent. They are very expensive and their indiscriminate use in sterility is shameful. Somewhat mysteriously they have been effective in relieving breast pain but their use in

the presence of cystic mastitis must be guarded by an alert respect for cancer

Still another hormone, that of the corpus luteum, progesterin, is now sold by Schering as Proluton. One rabbit unit will cause progestational changes in the endometrium of one rabbit if this endometrium has been prepared by sufficient estrogen. Fifty rabbit units will, under the same condition, cause barely perceptible changes of the same character in the human amenorrheic. Anything less than repeated doses of five rabbit units seems not to affect the bleeding mechanism in human beings. Since, like the other newer preparations, it is expensive, and sold only in ampoules containing one twenty-fifth of one rabbit unit, its use in clinical medicine should await further careful endowed trials. The use of such comparatively tiny doses in early pregnancy when the patient's own corpus luteum must be functioning to some extent seems of very doubtful value.

REFERENCES

- 1 Johnson, Carl E. Ovarian response in monkeys (*macacus rhesus*) to injections of antultrin S. *Am. J. Obst. & Gynec.* 26: 120 (Jan.) 1936
- 2 Reek, John. The effect of pregnancy urine extracts on the ovaries of patients with amenorrhea. (In process of publication)
- 3 Kurzrok, R. et al. The clinical use of prolactin. *Endocrinol.* 15: 18 (Jan-Feb) 1934

MASSACHUSETTS LEGISLATIVE
NOTE

House 1157. Petition of Henry J. Kennedy for establishment of a board of examination and registration to regulate the practice of chiropractic.

Report ought not to pass.

Filed in House.

MISCELLANY

HEALTH OFFICERS' MONTHLY STATEMENT OF
VENEREAL DISEASES REPORTED

APRIL, 1935

This statement is issued monthly for the information of health officers in order to furnish current data as to the prevalence of the venereal diseases. The following reports were received from State Health Officers. The figures are preliminary and subject to correction. It is hoped that this will stimulate more complete reporting of these diseases. The New England figures are as follows:

State	Syphilis		Gonorrhea	
	Cases reported during month	Monthly case rates per 10,000 population	Cases reported during month	Monthly case rates per 10,000 population
Connecticut	206	1.25	72	4.4
Maine	36	.45	48	6.0
Massachusetts	498	1.15	508	1.18
New Hampshire	12	.26	7	.15

Rhode Island	76	1.08	46	6.6
Vermont	12	.33	35	9.7

Surveys in which all medical sources have been contacted in representative communities throughout the United States have revealed that the monthly rate per 10,000 population is 6.6 for syphilis and 10.2 for gonorrhea.—*Treasury Department, Public Health Service*

RESUME OF COMMUNICABLE DISEASES IN
MASSACHUSETTS FOR MAY, 1935

Disease	May, 1935			5 Yr Aver age*
	1935	1934	1933	
Anterior Poliomyelitis	3	4	4	
Chicken Pox	1129	993	1001	
Diphtheria	39	46	130	
Dog Bite	1316	842	721	
Cerebrospinal Meningitis	10	4	11	
German Measles	9786	148	466	
Gonorrhea	524	535	521	
Lobar Pneumonia	428	329	348	
Measles	1751	5724	4286	
Mumps	674	576	810	
Scarlet Fever	981	1005	1393	
Syphilis	399	405	386	
Tuberculosis (Pulmonary)	342	342	374	
Tuberculosis (Other Forms)	51	38	48	
Typhoid Fever	16	7	12	
Undulant Fever	3	5	—	
Whooping Cough	504	1318	928	

RARE DISEASES

Anterior poliomyelitis was reported from Cambridge, 1, Malden, 1, Weymouth, 1, total, 3.

Dysentery (*Amebic*) was reported from Boston, 1.

Dysentery (*Bacillary*) was reported from Melrose, 1.

Encephalitis lethargica was reported from Springfield, 1.

Epidemic cerebrospinal meningitis was reported from Amherst, 1, Boston, 1, Brookline, 1, Ludlow, 1, Malden, 1, Melrose, 1, Quincy, 1, Salem, 1, Spencer, 1, Worcester, 1, total, 10.

Pellagra was reported from Brockton, 1, Needham, 1, Revere, 1, Waltham, 1, total, 4.

Septic sore throat was reported from Boston, 7; Dunstable, 1, Everett, 1, Fall River, 1, Lowell, 2, Lynn, 1, Medford, 2, Newton, 1, Somerville, 1, Watertown, 1, total, 18.

Tetanus was reported from Arlington, 1.

Trachoma was reported from Boston, 1.

Undulant fever was reported from Amesbury, 1, Amherst, 1, New Bedford, 1, total, 3.

Diphtheria was reported to about one tenth of its reported incidence of ten years ago.

Typhoid fever shows an increase over due to a local outbreak of eleven cases.

*Based on the figures

preceding

Infantile paralysis tuberculosis other forms, and mumps show nothing remarkable

Epidemic cerebrospinal meningitis seems to be on the increase throughout the country in general

German measles continues on in epidemic proportions.

Lobar pneumonia and chicken pox were somewhat more prevalent than last year

Whooping cough and scarlet fever show a decreased incidence below both the previous year and the five year average

Although pulmonary tuberculosis shows to date an increase in reported cases the deaths through March are running slightly lower than in 1934.

Measles while low for the State as a whole is epidemic in several communities.

CORRESPONDENCE

COMMENTS ON ARTICLES APPEARING IN THE NEW ENGLAND JOURNAL OF MEDICINE

Editor *New England Journal of Medicine*

June 20 1935

May I suggest that your correspondent from Worcester who castigates the article on German Health Insurance by Davis and Kroeger and incidentally the *Journal* for publishing it, read most carefully for the good of his soul the excellent utterance of Dr Stewart Roberts, of Atlanta, in the issue which contains his letter namely that of June 13

The *Journal* of course will not accede to his demands that it shirk half its duty by failing to inform its readers on the social and economic aspects of Medicine. On the contrary it will continue to give as fine leadership in such problems.

Sincerely yours,

J. H. MEANS.

OFFICIAL ACTIONS OF THE BOARD OF REGISTRATION IN MEDICINE

State House, Boston

June 20 1935

Editor *New England Journal of Medicine*

This is to inform you that Dr Rafael Reyes Garcia formerly of 353 Dwight Street, Springfield, Massachusetts, whose license to practice medicine was revoked December 20 1934 has been today re-registered by the Board of Registration in Medicine as a qualified physician in this Commonwealth

Yours very truly

STEPHEN RUSHMORE, M.D. Secretary

REPORTS OF MEETINGS

SURGICAL CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

One of the regular Thursday afternoon surgical clinics was held on the twenty-eighth of March. Dr Elliott C. Cutler presided. The first case presented was that of a child who had had staphylococcus septi-

cemia for four months. The whole femur and clavicle were the seat of an osteomyelitis. There was empyema on one side. She had run a temperature of one hundred and three degrees for two months and her body presented multiple sinuses many of which were healing. Donors were being immunized with her own staphylococcus.

The second case also had an empyema this time caused by group I pneumococcus. Five days before entry she had had a chill and a fever of one hundred and three degrees and had been irrational for two days, together with a cough productive of rusty sputum. Three days after the crisis her fever had risen and fluid was found in the right chest.

A rib resection was done in the posterior axillary line at the level of the eighth rib and a considerable amount of pus was withdrawn. She was shown two weeks after operation as a classical example of the simplest kind of empyema.

A forty-five year old housewife had complained of pain on respiration in the right chest with cough and fever. Although her fever had fallen she continued to have a leucocytosis and upon putting a needle into the chest, foul pus was found so that a rib resection was thought necessary. At the time she was shown the cavity which had contained encapsulated pus was decreased in size, although she was still running a temperature.

Dr Cutler said that chronic empyema is due to a retained foreign body, tuberculosis or failure to place the drainage tube into the base of the cavity.

The next patient was a forty-year-old woman who had had difficulty in walking and pain in her legs for three months. Three members of her family had died of tuberculosis. She had had a tumor removed from her right ovary in 1930. She had considerable pain in her lower back and a temperature of one hundred degrees. There was considerable discharge from an ulcerated cervix and an x-ray of her lumbar region showed both destruction and production of bone in one vertebra. Doctor Sosman demonstrated the marked irregularity in the lateral view of the fifth lumbar vertebra with a narrowing of the intervertebral disc. The lesion was largely destructive and there were several small loose fragments both of which were against a diagnosis of neoplasm. This was probably an inflammatory condition most likely tuberculosis.

X-rays were shown of a case with a spine tumor. There was a hollowing out of one vertebral body six months later this had softened and herniated anteriorly. Heavy doses of x-ray were administered, and since that time it has been healing with a shell of newly formed bone. The last examination showed the same process invading both vertebrae above and below. The exact diagnosis has not been made.

The last patient was a sixty-four-year-old man with tabes. He broke his leg six weeks before entry. This had been set in an outside hospital and there had been very little growth of new bone. In con-

nection with this patient a frame was demonstrated which may be used to reduce fractures by means of skeletal traction. It holds the reduced fracture in place while the plaster cast is put on.

THE MALDEN TUBERCULOSIS AND HEALTH ASSOCIATION

The Malden Tuberculosis and Health Association held its twenty fourth annual meeting, which began at a dinner, at the Y W C A. in Malden, Tuesday evening, June 11. Of special interest was the selection of Mrs Frederick R Makepeace for secretary in place of Mrs F Anna Green, secretary since 1911, who resigned in the spring. Mrs Green is the widow of Dr J G Green, founder of the society, and its president till his death, several years ago. The two officers, working in perfect harmony, did much toward establishing Malden in its advanced place in matters of health and sanitation.

At the business meeting, formal reports were first in order, followed by the election of officers to serve during the coming year. The result of the election was President, Dr Samuel Hoberman, First vice president, Dr Carroll C Burpee, Second vice president, Farnsworth G Marshall, Third vice president, Mrs Ralph M Kirkland, Fourth vice president, Dr Clement F Lynch, Treasurer, Charles McKenzie, Secretary, Mrs Frederick R Makepeace, Auditor, Clarence W Clark, Honorary director, Mrs Costello C Converse, Directors, Rev Seth R. Brooks, George H Corey, Joshua T Day, Clarence S Doane, Edward V Fisher, Mrs Lewis A. Francis, Mrs Samuel Hoberman, Robert A Hodgdon, Mrs Thornton Jenkins, Mrs Esther Jordan, Mrs Cora Kelleher, Charles E Keniston, Jr, Rabbi Joseph H Margolies, Dr E W Moore, Rt Rev Msgr Richard Neagle, Eugene A. Perry, Mrs J B Rendle, John Ritchie, Mrs Frank M Sherburne and Miss Alice Walsh.

The speakers included Rep Burt Dewar, Edward Devine, President of the Malden Health Camp Association, Frank Doucette, postmaster, representing the Elks, and interested in a number of public health projects, and John Ritchie, former president of the Malden association. The guest speaker was Dr David Zacks, of the Massachusetts Department of Public Health, who, in an interesting talk, outlined progress in combating tuberculosis. As with other maladies, the work at first concerned itself with advanced, adult cases, with unmistakable symptoms, but now it is in the line of prevention, beginning with the child. Early diagnosis is most important, this must depend to a considerable extent on observation of the child in the home, and the realization by the parents of the need of tests and x ray work. Toward such public education, associations, like this one in Malden, working in cooperation with the local health officers, are especially valuable.

Dr Zacks emphasized the importance of the school physician, insisting that full time service is necessary. Today these persons are usually only part time men, and inadequately paid at that.

The concluding exercise of the meeting was the presentation of prizes to students of the Malden High School, who were winners in an essay competition. The Association offers these prizes each year, as a part of its health education work. The subject of the competition this year was Dr William Crawford Gorgas. The prizes, which were books, were presented by Farnsworth G Marshall, Superintendent of Schools, who took occasion to outline the success of his department in establishing practical health education and formation of health habits as a part of the regular school program. In the lower grades, this has been exceedingly successful, and Malden has been a model for the rest of the country, but there have been serious difficulties in adapting these studies to junior high and high school grades.

The students receiving first, second and third prizes, respectively, were the following sophomores, Francis Kenney, Henry Sanborn, Jr, and Eleanor Buffet, and juniors, Laura Chamberlain, Arlene Getchell and Audrey Lowry.

NEW ENGLAND HEART ASSOCIATION

The regular monthly meeting of the New England Heart Association was held at the House of the Good Samaritan April 29. Dr Bland presided. Dr Howard B Sprague was the first speaker, and presented two cases of rheumatic heart disease with a peculiar syndrome consisting of attacks of marked thoracic pain with an anginal distribution, which were apt to start while the patient was at rest, to continue for a considerable time, and to be associated with a marked rise in blood pressure and pulse rate. This syndrome is associated with free aortic regurgitation, and often becomes intolerable. Sir Thomas Lewis considers this to be due to spasm of visceral blood vessels, and it is perhaps significant that the attacks are relieved, only briefly, by vasodilator drugs. The first patient was a woman of twenty six who had such attacks frequently and so severely that Dr James C White employed an alcohol injection on the left side followed by gradual diminution and almost complete disappearance of the symptoms, other than a slight palpitation. As is usual the patient developed a Horner's syndrome on the operated side. Doctor White described the operation, in which needles are inserted just to the left of the spinous processes of the upper four thoracic vertebrae to reach the sympathetic fibers coming from the corresponding thoracic nerves to the heart. If these can be reached and paralyzed by alcohol, complete relief of pain on this side may be expected.

The second case was a boy of fifteen who also had rheumatic heart disease with marked aortic regurgitation and attacks of severe anginal pain associated with tachycardia. During the attack the systolic blood pressure rose to over two hundred and fifty millimeters of mercury and the pain would radiate up both sides of the neck and down both arms. These had become increasingly severe so

that morphia in large amounts did not relieve them and on one occasion an attack had led to cardiac collapse. Doctor White injected this patient likewise and obtained complete relief in the precordium although the right side continued to be painful and there was a small painful area above the point of successful injection on the left, suggesting that the fibers from the first thoracic segment had not been completely destroyed.

Dr. Frank Fulton reported a similar case seen at the Rhode Island Hospital. Doctor White stressed the point that these patients, although relieved of severe attacks of pain still have some warning of the attack so that they may not overdo.

Dr. Edward F. Bland presented the second paper of the evening on "The Development of Mitral Stenosis in Young People." For some time it has been generally accepted that a mild or late diastolic murmur heard at the cardiac apex is indicative of mitral stenosis and it is known that such may appear relatively early after rheumatic fever. He presented observations on one hundred postmortem cases of young patients dying at varying intervals after the onset of rheumatic fever and compared them with the clinical data. In the first year only one case showed definite deformity with an anatomical stenosis of the mitral valve, and Doctor Bland believes that this patient had probably had the disease longer. In the group between one and two years fifty per cent of the patients had deformity with or without stenosis. From two to five years most of the cases showed stenosis or gross deformity although about one-third still showed only slight thickening of the valve. About two per cent of rheumatic cases have pure aortic regurgitation with out any mitral involvement. It was concluded from the above data that it takes at least two years and usually longer before there is important deformity of the mitral valve. The clinical records indicated that a diagnosis of mitral stenosis and regurgitation was made in sixty per cent of the one hundred cases. Cases with deformity but without anatomical stenosis showed a mitral diastolic murmur in seventy-six per cent of the cases and sixty per cent of cases without any deformity and with only slight thickening also showed a similar murmur. Forty five per cent of cases with fresh vegetations also had a diastolic murmur. Therefore in young people who have had a severe rheumatic infection and considerable enlargement (dilatation) of the heart, one must be cautious in diagnosing mitral stenosis. Such signs may completely clear up if the heart returns to its normal size.

In discussion Dr. Paul D. White traced the history of the development of the study of the mitral diastolic murmur first described by Williams in 1830. Until recently only the presystolic murmur has been considered as important in mitral stenosis. Doctor White and others were influential in establishing the mitral diastolic murmur as early evidence of mitral stenosis. Since 1933 there has occasionally been some doubt as to the presence of mitral stenosis

even though the murmur is present. However in the older group even if there is no presystolic accentuation a mid-diastolic murmur suggests mitral stenosis. It is also important to remember that one may have a diastolic thrill as well as the diastolic murmur without mitral stenosis in the early cases.

Dr. Benedict F. Massell spoke on "An Evaluation of the Sedimentation Rate as a Test for Rheumatic Activity." He pointed out the importance of determining the duration of active infection as a guide to the treatment of the patient. Statistics on the corrected sedimentation rate in rheumatic fever patients were shown. By the method used (Rourke and Ernste) a rate over 0.4 millimeter per minute is abnormal. The importance of the corrected sedimentation rate is evidenced by the fact that in very many cases it remains elevated after all other signs and symptoms of infection have disappeared but Doctor Massell pointed out that there are an equal number of instances in which the white blood count persists as the only sign of active infection. The P-R interval of the electrocardiogram was shown to be frequently prolonged and in three per cent of the cases was the last sign to return to normal. The clinical signs of active rheumatic fever such as nodules, low grade fever, rash and nose bleeds must also be searched for carefully as occasionally any one of these may be the only sign of activity. Therefore it was concluded that the corrected sedimentation rate is of great value as a guide to the care of rheumatic fever patients but that other laboratory tests (particularly the W.B.C.) are still useful and clinical observations must still be made. In evaluating the significance of an elevated sedimentation rate it must be remembered that the test is not specific and that there are many things which may accelerate it, such as colds, tonsillitis, tonsillectomy and perhaps obesity. Doctor Blackfan brought out the point that a subnormal level of temperature may be as important a sign of activity as a slightly raised temperature and Dr. Paul White said that the early murmur spoken of above might be used as evidence of activity and showed the presence of a dilated heart. Doctor Brown said about ninety per cent of patients with angina pectoris have an increased sedimentation rate.

Dr. James M. Faulkner presented the last paper on "The Effect of the Administration of Vitamin C in Rheumatic Fever." In the middle of the last century lemon juice was thought to shorten the period of acute joint pain in rheumatic fever. Recently Rinehart in California has been able to cause joint changes and cardiac valve lesions resembling those of rheumatic fever in guinea pigs with scurvy and a superimposed infection. Doctor Wolbach has shown that the lack of cement substance in the tissues is the essential lesion in Vitamin C deficiencies and Klinger has explained that a fibrillar degeneration of this "ground substance" is characteristic of rheumatic fever. In scurvy the formation of red blood cells is retarded and there is usually an anemia with neutropenia. Administration of Vitamin C

causes a rise in the young reticulated red blood cells and a rise in the hemoglobin level in the anemia of scurvy. Doctor Faulkner reported the results of tests on the therapeutic effort of Vitamin C in rheumatic fever. A group with active infection was selected and the reticulocytes, hemoglobin, red blood cells, and sedimentation rate, were all followed. In general, Vitamin C appeared to have no influence on the course of the infection. However, the interesting observation was made that the reticulocyte count showed a definite rise up to as high as eight per cent after about nine or ten days. The same response was obtained with large doses of orange juice as with pure ascorbic acid by mouth or intravenously. A corresponding rise in hemoglobin was the rule when the initial hemoglobin level was low. In normals and recovered rheumatic fever patients, no such response was found but in several cases of active bone tuberculosis the same response followed the administration of Vitamin C. The cases giving the highest response were those which had signs of more active infection as evidenced by a higher white count and a more rapid sedimentation rate and fever. The above considerations suggest that the requirements for Vitamin C in infection are not adequately cared for by the normal diet.

HARVARD MEDICAL SOCIETY

Dr Elliott C Cutler presided at a meeting of the Harvard Medical Society held at the Peter Bent Brigham Hospital March twenty-sixth. Doctor White presented the case of a sixty-two year old man who entered on March eleventh having had chills two weeks before. For the past twelve years he had had attacks of asthmatic bronchitis, and pneumonia three years ago. Physical examination showed a man propped up in bed and wheezing. There was arteriosclerosis of the retinal and peripheral vessels. His chest was emphysematous and there were numerous râles. The blood pressure was one hundred and fifty over eighty-five, hemoglobin seventy-five per cent, white blood cells twenty thousand, and temperature of one hundred and two degrees. The day after entry he had a severe pain in his precordium followed by circulatory collapse and auricular fibrillation for a few hours. Electrocardiogram showed a high take-off in leads II and III. A few days later there was a transitory period of complete heart block. The diagnosis was coronary occlusion.

Dr Hyder presented a thirty-year old Negro who entered with dyspnea and a persistent cough of two months duration, and who had had an attack of rheumatic fever with polyarthritis ten months previously. For the past two years he had had dyspnea on exertion which had been definitely worse in the past six months. Physical examination disclosed a markedly enlarged heart which was fibrillating. There was a presystolic and a rumbling diastolic murmur at the apex. The fourth, fifth, and sixth ribs were decompressed and he gradually improved postoperatively until, when presented, he had no

dyspnea. His vital capacity was increased by about four hundred cubic centimeters. Doctor Cutler discussed the operation briefly and said that it was the persistent cough which had led to the attempt to decompress the heart in order to relieve the pressure on the left main bronchus.

Dr Joseph T Wearn from Cleveland discussed "The Circulation in Normal and Hypertrophied Hearts." He has injected the coronary vessels in some four hundred and fifty hearts and has demonstrated vessels in the valves in eighty-six per cent. The type of vessel was the same as that found elsewhere in the body. Doctor Wearn believes that probably ninety per cent of all hearts have vessels in the valves. He has found valvulitis in the absence of vessels, as well as vessels in the absence of valvulitis.

The pathologist frequently reports the myocardium as normal when there is clinical evidence of severe myocardial insufficiency. When cardiac muscle hypertrophies, it functions poorly. By injection of dye into an oxygenated perfusate which has caused a heart to beat again after death, Doctor Wearn has been able to determine the relative number of capillaries to muscle fibres in a given area of heart muscle in different cardiac conditions. The normal rabbit has three thousand capillaries per square millimeter. In rabbits with cardiac hypertrophy there is a definite increase in the size of the fibres, and the number of capillaries per square millimeter is definitely diminished. In human beings there is also a marked increase in the size of the fibres whenever there is hypertrophy without a corresponding increase in the number of capillaries. The result of this is that in hypertrophied hearts there is a much less adequate supply of oxygen, because it is farther from a capillary to any given point than in a normal heart. Thus the products of metabolism are poorly removed and this interferes with muscle action so that a hypertrophied heart does not perform so well as a normal one.

Dr Claude S Beck spoke on "The Establishment of Collateral Blood Channels to the Heart by Operation." The myocardium is defenseless after a coronary occlusion, because it cannot rest, and there is no opportunity to develop a collateral blood supply such as can be done in any other muscle. A large series of animal investigations were carried out in an attempt to create collateral vascular channels. In order to create a vascular bed, the pericardium, the substernal muscle, mediastinal tissue, or omentum was used. In order to create a need in the heart muscle for this collateral vascular bed, the coronaries were gradually occluded by means of silver bands.

Several slides of the specimens were shown, and by special injection methods the progressive amount of occlusion of the coronaries was shown. When, after a collateral bed had been established, gradual coronary occlusion was carried out, there was very little death of myocardial fibres. Doctor Beck concluded that these hearts had been given a new blood supply.

Of ten dogs seven died after ligation of the right coronary artery, but in another series of twelve dogs where they had been prepared by establishing a vascular bed for a collateral circulation the occlusion of the right coronary artery caused only two to die, and one of these from empyema. In this way Doctor Beck has protected the heart from sudden complete coronary occlusion.

This method has been tried on one patient with coronary disease. The insertion of the pectoralis major was cut and a pedicle graft of the muscle was made. The pericardium was opened and the inner surface roughened. Then the graft was divided, one part attached to the apex and the other near the base of the heart and then sutured to the pericardium. Although as yet nothing can be said of the clinical benefit derived from such procedures it seems that in the future a definite advance may be made along this line.

In the discussion Doctor Beck pointed out that there was no cardiac complication resulting from adhesion. Doctor Christian said that there is an example of simple methods of investigation producing important new information concerning an old problem.

WACHUSETT MEDICAL IMPROVEMENT SOCIETY

The Wachusett Medical Improvement Society held its final regular meeting of the season at Holden District Hospital on the evening of June 19.

After dinner the committee on outings reported and it was arranged to have the regular annual outing at Sellers in Wayland on July 3 ladies invited. A trip on Dr William B. Davidson's yacht was planned for July 23.

The speaker of the evening was Dr John C. Corrigan, Research Fellow in Preventive Medicine Tufts College Medical School, whose subject was "The Clinical Management of Edema."

SOCIETY MEETINGS, CONGRESSES AND CONFERENCES

June 24—Boston City Hospital. Henry Willard Williams Memorial Lecture will be given at 8 15 P.M. in the Cheever Amphitheatre.

June 24 25—American Urological Association and Western Branch Society American Urological Association will meet at the Palace Hotel, San Francisco California. For meet at the Palace Hotel, San Francisco California. For details write Dr Charles P. Mathis 460 Sutter Street, San Francisco California.

June 27 29 Inc—British National Association for the Prevention of Tuberculosis will be held at Southport, England. Persons desiring further information should write to Miss P. Stokland, Secretary of the Association at Tavistock Square North Tavistock Square London W. C. 1 England.

July 1 23—University of Freiburg 1 Br will hold a vacation course of the medical faculty. For information address Akademische Auslandsstelle der Universität Freiburg 1 Br Schwimmbadstrasse 3, Germany.

July 6—Staff rounds at the Peter Bent Brigham Hospital, Boston.

July 12 27—Soviet International Congress on Industrial Accidents and Diseases, Brussels Belgium. The trial Accidents and Diseases of the Congress is under the chairmanship of Dr Fred H. Albee, New York, for the Sec. on Accidents, and that of Diseases, Dr. Hayhurst Columbus Ohio for Industrial Accidents. The American delegation to the Congress will sail from New York on delegation to the Congress Amsterdam. The Congress and July 8 and visit London. Physicians interested in the Congress or in the medical tour in conjunction

with it, may address the Secretary Dr Richard Kovacs 1100 Park Avenue New York City.

August 22 September 5—Latin American Congress of Physical Therapy X Ray and Radium. For information address Dr Madge C. L. McGuinness, 111 Madison Avenue New York City.

October 7 10—American Public Health Association will meet in Milwaukee Wisconsin. For information address the American Public Health Association 50 West 50th Street, New York City.

October 21 November 2—1925 Graduate Fortnight of the New York Academy of Medicine. See page 939 issue of May 9.

October 28 November 1—The Twenty Fifth Clinical Congress of the American College of Surgeons. See page 1065 issue of May 30.

BOOK REVIEWS

The Autonomic Diseases or The Rheumatic Syndrome T. M. Rivers. 199 pp Philadelphia Dorrance & Company Inc. \$3.00

Apparently this book presents the work of an intelligent, individualistic type of man. In its two hundred and seventy-seven pages an attempt is made to cover the rheumatic syndrome autonomic nervous system disorders heart disease respiratory disease, alimentary tract disorders uterine irregularities, and other syndromes affected by the autonomic nervous system. The disturbances of the autonomic nervous system tissue and joint disease are dependent upon allergens whose action in one person, under certain conditions will produce a genuine arthritis in another individual with the same factors another disease syndrome. Why each individual does not develop the same type of disease is unknown.

The author's attempt to cover a great deal of ground because of the relationship between various disease syndromes with one common mechanism affected has resulted in a bulky volume, in which his meaning is not always clearly expressed. If the book is read carefully one will be well repaid because there is between its covers a tremendous amount of information. A definite plan is followed but the text impresses one as having been written hastily.

Arthritis. The author has made an earnest attempt to learn more of the prophylaxis the etiology and the pathological picture of real arthritis that is rheumatoid or atrophic arthritis. The results of his experimental work with animals form the basis of his conception of arthritis which briefly is as follows. Atrophic arthritis is the result of the action of an amine toxin, bacterial in origin. It starts from a focal infection. The bacteria from this focus enter the blood stream and produce a general systemic infection thus making it possible for bacteria to enter in or about a joint and produce another focal infection. The bacteria produce toxin at their sites. This toxin is an amine probably an isomylamine which amine is formed by decarboxylation of the amino acid leucine. Amino acid is always present in body tissue and the amines are formed by enzymic action of the bacteria on this division of the body proteins. Arthritis is produced by the action of these amines resulting from bacterial action. Bacteria emit enzymes which digest and decarboxylate

the amino acids, converting them into amines. Bacteria lodge in tissue within or adjacent to the affected joints and produce amines when in contact with it. Distal focal infections may transmit toxins through blood vessels or lymph channels and so reach the joints producing joint changes. Amines may also be transmitted through the autonomic nervous system and so cause joint tissue damage.

Treatment The author's own summary of treatment follows

- 1 Foremost of all treatment for all kinds of arthritis is prophylaxis, which should begin with early infancy and should be continued through childhood and youth.
- 2 Removal of the cause is of primary importance as soon as the disease is discovered
 - (a) Removal of diseased tonsils, teeth, etc
 - (b) Treatment of diseased mucous membranes
 - (c) Correcting constipation
 - (d) Ultraviolet rays to destroy infection and convert sterols into viosterol
 - (e) Increased vitamins A and D to increase the resistance of the tissues against infection
 - (f) Autogenous vaccines
- 3 Elimination of toxins via skin, kidneys, lungs and bowels
- 4 Desensitize or move away from the causative allergens
- 5 Adjust the mind to a state of equilibrium by pleasant surroundings
- 6 Adjustment of rest and exercise
- 7 Correction of digestive disorders
- 8 Correction of endocrine imbalance
- 9 Physiotherapy—heat, massage, electricity, etc
- 10 Drugs—relaxives, alteratives, stimulants, tonics, and laxatives as indicated. Avoid depressants
- 11 Constructive diet rich in proteins and vitamins
- 12 Surgery—sympathetic and orthopedic

Whereas the author recognizes the importance of prophylaxis to prevent the appearance later in life of arthritis, he does not make clear that there are times when the removal of foci of infection may be the precipitating cause sending the patient into the disease from which attempt is being made to save him. He appreciates the value of following patients from the beginning to the end of their disease, but in no place in the book was this idea more than mentioned. No yearly follow-up examinations with clinical or scientific changes were reported. He has followed the example of many authors and touched here and there on the importance of the psychological factor in its effect on physiology, but he has not stressed it. No practical suggestions are offered to an individual looking for assistance in treatment along this line.

The book may be summed up as one presenting the usual ideas of etiology, or precipitating factors, of chronic arthritis and the usual forms of treatment, with emphasis laid on individual rather than blanket form treatment. An attempt is made in addition to place the etiology of arthritis upon a rather specific basis, that is, the action of amines

directly or indirectly upon the joint and surrounding tissues. The author recognizes also that patients presenting the same apparent potential factors may not have arthritis. As is usual, inheritance, environment, malnutrition, strain, etc., are mentioned as the additional factors which may precipitate the potential "chronic" into an actual disease syndrome. The book does not present a new idea, which is developed a reasonable distance, but the author, himself, appreciates how short a distance he has traveled in his attempts to present facts covering the entire course of disease. It definitely is one food for thought, and those individuals who are interested in keeping in touch with all of the arthritic studies will find it a worth-while addition to their collection.

Human Personality and the Environment. Macfie Campbell 252 pp. New York: The Macmillan Company, 1934 \$3.00

The Lowell Lectures, given to popular audiences, have often served to summarize a current subject in such a manner that the average listener or reader can grasp the significance without being bothered by the minutiae of scientific or literary investigation. Such is the case in the book under consideration. Clearly set forth in the easy style of an accomplished speaker, we follow the delightful and enlightening psychobiography of Old friends are called in the light of their "feeling tone of experience." We see how they maintained the equilibrium between conflicting internal tendencies, their personalities often handicapped by intrinsic and extrinsic factors. Dr. Campbell takes his examples from a wide field: Roosevelt, Byron, Scott, Robespierre, Beethoven, Father Doyle, and many others. He shows how the human organism adapts itself to its environment and utilizes the environment for the experience of its own individual spirit.

The environment may be considered as either a physico-chemical system or a spiritual universe; due emphasis is laid on neither. Both play a part, and to each does man owe something of his personality. The essence of this book is found in this formulation: the charm of its style reflects the author's own delightful personality. To the busy physician, whose interests spread to the book, will give many hours of pleasure.

Medical Tactics and Logistics. Colonel Gustavus A. Blech and Colonel Charles Lynch. 205 pp. New York and Baltimore: Charles C. Thomas, 1934 \$4.00

"Medical Tactics and Logistics" gives to the civilian physician in the text with the accompanying maps a well ordered and simply stated outline of the medical officers' duties in the Army while on active service in time of war. In the thirteen chapters the theory of war, the development of wars of the future, and organization of the medical service at the front are successively taken up. The medical department's activities in the

of an infantry regiment on the march, in different active manoeuvres in offensive and defensive warfare, and later with the cavalry arm of the service are clearly described. Duties and varying situations in which the medical officer may find himself in an actual battle are depicted. The descriptive methods used, of officers in conversation about various problems during the battle give much added force to the subject, and the reader visualizes "Capt. Lint, Capt. Splint, and Capt. Binder" talking of their various problems and orders in a very vivid way.

The thought and planning for the medical arm of the service in action at the present time and the careful training and rigid attention to all that make for the quickest and best service for the wounded at the casualty clearing stations and the hospitals are in vivid contrast to the casual methods used in years past.

In this contrast it is interesting to note an example of the lack of organization in the medical service during the Civil War taken from "The Irrepressible Conflict" by Arthur Charles Cole (Macmillan Co., N. Y., 1934)

"Many of the better trained city physicians promptly enlisted and were given commissions for field service. On the other hand in the rural areas one who possessed a small stock of medicine, a few receipts, and a knowledge of how to bleed a patient was accepted as a military doctor.

"After a battle all the doctors who could be spared in a city like Richmond hurried off to the field in wagons around any dwelling served as a hospital. Richmond. Public buildings and tobacco factories sheltered the sick and wounded sometimes to a total of thirty thousand men.

Every physician unfamiliar with modern military medical procedures should read "Medical Tactics and Logistics" and its introduction as obligatory reading for senior medical students would be both logical and beneficial addition to the medical curriculum.

Physical Diagnosis Warren P. Elmer and W. D. Rose. Seventh Edition. 919 pp. St. Louis. The C. V. Mosby Company \$8.00

This book is larger than most recent volumes on Physical Diagnosis. It is carefully planned, very complete and well illustrated. The first and somewhat greater part deals with the technique of physical examination by inspection, palpation, percussion and auscultation with description of the normal findings and of the recognized departures from them. More of the neurologic examination, special procedures such as exploratory puncture, radiology and electrocardiography are included. The second part of the book is composed of discussions of separate diseases of the respiratory and circulatory systems, their clinical pathology and symptoms, their physical signs and their diagnosis. These are admirably presented.

Yet excellent as the book is the trend of mod-

ern teaching has lessened its usefulness. Physical diagnosis is a practical procedure which is easy to demonstrate but difficult to describe so that the increase of practical instruction has reduced the need for printed descriptions. For review and explanation brief manuals are commonly sufficient. This volume is more extensive than most students will be able to study systematically although they may well use it for reference. Perhaps its greater service will be to physicians who find themselves deficient in this subject but are unable to take courses of instruction. To these it may be recommended.

The Medical Clinics of North America Volume 18. Number 3. November 1934. 301 pp. Philadelphia and London. W. B. Saunders Company. Paper \$12.00. Cloth \$16.00 net.

With the publication of this number is announced a "radical change of policy" featured by the discussion of everyday problems for the benefit of the general practitioner together with an elaboration of the symposium idea. The volume is opened by a symposium on the Adenopathies the first portion (70 pages) being covered by a treatise on "Lymphadenopathy: A Clinical Interpretation" by Drs. L. W. Held and A. A. Goldbloom. This clinic contains a good classification of the various disorders of the lymph nodes. Aside from this, however, it is composed in great part of a hodge-podge of hastily written, often inaccurate information. "Glandular fever" for instance is sharply distinguished from "Infectious Mononucleosis" despite the world-wide consensus that the two terms are synonymous. There is much loose writing, references are frequently inaccurate, and some of the concepts border on the fantastic. Particularly is this true in the chapter on Status Lymphaticus which is said to be due to Intrauterine Infection. Individuals who readily develop lymphocytosis who become infected with glandular fever who develop agranulocytosis, and of course those who die suddenly are usually typical status lymphaticus.

In sharp contrast to this clinic, is the second one by Dr. Lloyd F. Carver of the Memorial Hospital, who gives a sober, exceedingly practical and eminently sane presentation of the treatment of the more important lymphadenopathies with special reference to irradiation. There can be nothing but praise for this section and for most of the articles which follow.

Dr. Harlow Brooks writes in a very practical fashion on the recognition and treatment of the failing heart and Dr. Ernst P. Boas gives an excellent little treatise on the treatment of angina pectoris. R. T. Frank's paper on the diagnosis and treatment of the menstrual disorders is very sane and very practical. Henry D. Richardson writes an interesting chapter on the relation of the thyroid gland to Graves disease emphasizing that the fundamental disorder is not in the thyroid gland proper and that surgical treatment is often illogical. Tolstoi contributes an unusually practical article on the dietetic

treatment of diabetes illustrated by valuable diet lists and photographic illustrations. There is also a good article by Bastedo on functional colon states.

There can be no question but that this volume should prove exceedingly valuable to the general practitioner. It gives him just the practical points for which he often yearns but frequently does not obtain. The reviewer may be pardoned for being possibly captious when he inquires as to the difference between an article and a "clinic." Is a "clinic" simply a loosely-written article or is it a bedside exposition? With careful editing, these articles will justify the "radical change in policy" which has been inaugurated.

The Journal of Technical Methods and Bulletin of the International Association of Medical Museums, No XIV. Edited by Maude E. Abbott. 134 pp. Montreal: The Medical Museum. \$2.00.

The work of the International Association of Medical Museums is unique in its field and the current number of its Journal contains material of value to everyone interested in the visual records of pathology. It is now an annual publication and contains only recent articles and confines its contributions to technical methods, cardiac anomalies and teratology, and the Proceedings of the Association. One of its most important functions is the combination in one periodical of the experience of various countries as to the most effective preservation and display of pathological specimens. This it can do by the international character of the membership of the Association headed by Professor J. Ludwig Aschoff in Germany, Sir Arthur Keith in England, and Dr. Maude E. Abbott in Montreal. No one can look through the illustrations in this number without being struck by the technical excellence of the displayed specimens which helps so much to make medical museums stimulating to students. There are articles on Museum Administration, Museum Technique, Cardiovascular Anomalies, and Abstracts of Current Literature. The Journal is distinctly a worthwhile addition to the library of anyone who is interested in the preservation of the data of medical experience which are often so transitory when confined to the memory or even to the written descriptions of the physician.

Practical Neurological Diagnosis. With special reference to the problems of neurosurgery. R. Glen Spurling. 233 pp. Springfield and Baltimore: Charles C. Thomas. \$4.00.

This short, up-to-date monograph covers the field of structural neurology, particularly in its application to neurosurgery. The larger part of the book is given over to straightforward neurological examination, none of which calls for special comment, as similar material is to be found in many textbooks. The illustrations of neurological tests are adequate and the author has brought the material up to date, based on physiological researches published within a few years. A second section on the cerebrospinal

fluid, gives the usual data respecting the technique of lumbar puncture and the laboratory examinations. Cistern puncture is not explained, although the latter part of the book, demonstrating the use of lipiodol in the subarachnoid space, makes a knowledge of this procedure necessary. It would seem to the reviewer that this procedure, often simpler than lumbar puncture, should find a place in a book of neurological diagnosis. The final section deals with x-ray diagnosis and is illustrated by some excellent photographs, showing the effects of brain tumors on the skull, encephalograms and lipiodol injections of the spine. In summarizing the value of lipiodol as a diagnostic agent the author states (page 225), 'it is resorted to in the presence of a normal Queckenstedt test, the examination will yield no valuable information.' This is certainly not the experience of other investigators. In intramedullary tumors and, more especially, in lesions below the end of the conus, lipiodol often discloses pathology when the Queckenstedt test is negative.

Except for a few minor points, therefore, this book can be highly recommended as a simple account of the principles of neurological diagnosis and as many neurosurgeons now prepare themselves for their specialty by adequate neurological training, this book should find a useful place in their particular field.

Cases Presented at the Staff Meetings, Neurological Service, Massachusetts General Hospital, 1934. Pp. 126. Privately printed.

This is the fifth of a series of mimeographed sheets bound together in book form, with a careful index and illustrated by photographs and diagrams, which have been published by the Neurological Department of the Massachusetts General Hospital, under the supervision of Dr. J. B. Ayer. It records the important features of the histories of all patients presented at the Thursday morning conferences, in many cases supplemented by follow-up notes. As these patients are usually the most important examples of neurological conditions which occur in the hospital at the time of their presentation, the book forms a very valuable record of neurological hospital practice during the course of a year. The illustrations add greatly to the value of the book. A glance through the index indicates the type of disease shown by patients who come to a general hospital for neurological diagnosis and treatment. Particularly important are the cases of cerebral aneurysm, various types of encephalomyelitis, epilepsy of the Jacksonian type, brain tumors which have been verified either by operation or postmortem examination, meningitis, and a long list of diseases of the spinal cord. Thirty-seven cases of brain tumor are described and fourteen cases of tumor of the spinal cord, thus reflecting the close relation between neurology and neurosurgery. Nearly twenty cases, moreover, were referred to the clinic on account of disease of the eye. In general the publication reflects great credit upon the Neurological Department of the hospital.

